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ABSTRACT

This document is a collection of newsletters containing information on environmental education. The newsletters, produced by the ERIC Information Analysis Center for Science, Mathematics and Environmental Education, contain information concerning programs, materials, and resources related to environmental education. There is a focus on Federal programs related to environmental education, sources of financial assistance for environmental education, descriptions of selected programs in urban areas, descriptions of selected programs in rural areas, evaluation of Title III materials related to environmental education, and reviews of research related to environmental education. (JP)

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Center Comments

This is the first of a series of bulletins to be released monthly with information concerning programs, materials, and resources related to environmental education. Future bulletins will focus on Federal programs related to environmental education, sources of financial assistance for environmental education, descriptions of selected programs in urban areas, descriptions of selected programs in rural areas, evaluation of Title III materials related to environmental education, and reviews of research related to environmental education. Each issue will also contain announcements of resources and materials.

Environmental education encompasses all disciplines; hence, efforts will be made to include information of interest to persons in various fields including the social sciences, language arts, sciences, mathematics, music, art, health, physical education, recreation, industrial arts, and home economics. Environmental education programs are provided both in school settings and in various community settings outside the school. Information regarding cooperative programs between school and community agencies and separate programs involving only schools or community agencies will be included.

In addition to this special monthly bulletin, this Center produces a newsletter four times a year which would be of interest to many of you. The total ERIC system produces two publications which would also be of use. **Research in Education** is a monthly publication that presents abstracts of documents and other materials. Many of the documents announced are available on microfiche or in hardcopy from the ERIC Document Reproduction Service. The **Current Index to Journals in Education**, a monthly publication produced by the ERIC system in cooperation with CCM Information Sciences, Inc., contains coverage of many journals carrying articles related to environmental education. Articles are listed separately by topics. Some articles are annotated. Brochures presenting more information regarding **Research in Education** and the **Current Index to Journals in Education** are included with this bulletin.

We solicit your cooperation in identifying educational materials, programs, and research of significance to persons interested in improving environmental education. We also would appreciate your suggestions regarding how ERIC can be of most benefit to you.

Robert W. Howe
Director

"European Conservation Year" Declared

The Committee of Ministers of the Council of Europe has proclaimed 1970 as "European Conservation Year." In corresponding with the theme of the year, the Committee hopes to accomplish three objectives: (1) to inform the public about natural resources, their limits, and the inroads made into them by mankind, (2) to make everyone aware of his responsibilities, and (3) to undertake concerted action to guarantee the conservation of those resources.

At the recent European Conservation Conference a Declaration on the Management of the Environment in Europe was adopted and the broad outline of a program of action was defined.

National Parks Used as Environmental Laboratories

Park pedagogy—is a growing contemporary method of teaching about the environment. Therefore, in order to utilize parks more effectively as environmental laboratories, the National Park Service has undertaken two educational programs—the National Environmental Education Development (NEED) and a nation-wide network of Environmental Study Areas (ESAs) within the National Park System.

NEED is a curriculum-integrated environmental awareness program for kindergarten through 12th grade, designed to provide deeper understanding of the values to be found in visits to National Park areas.

Fifth/sixth grade materials are being field tested at 20 locations in the U.S., involving approximately 15,000 children of widely ranging economic, social, and cultural backgrounds. About 900 children are being used to pilot test NEED materials for third/fourth and seventh/eighth grades. Fifth/sixth grade materials were pilot tested last year by 6,000 children at nine sites.

An Environmental Study Area is an environmental laboratory that relates the individual to his environment so that he can better understand his role as part of the total network of life. ESAs, although primarily designed for day use by school children, lend themselves to educational use by all interested individuals.

One-hundred ESAs, of which 44 have been in operation since Spring, 1969, are located in the U.S.

—Cont.—

For information on ESAs and the NEED program, write:

NORTHEAST REGION
National Park Service
143 South Third Street
Philadelphia, Pennsylvania 19106

NATIONAL CAPITAL REGION
National Park Service
1100 Ohio Drive, S.W.
Washington, D. C. 20242

SOUTHEAST REGION
National Park Service
Federal Building, P. O. Box 10008
400 North Eighth Street
Richmond, Virginia 23229

MIDWEST REGION
National Park Service
1709 Jackson Street
Omaha, Nebraska 68102

SOUTHEAST REGION
National Park Service
P. O. Box 728
Santa Fe, New Mexico 87501

WESTERN REGION
National Park Service
P. O. Box 36063
San Francisco, California 94102

The National Park Service intends to institute a National Environmental Education Landmark Registry, so that areas outside the National Park System that qualify as environmental laboratories may participate in the ESA approach to environmental education.

Oceanography Films Available

The book, **Films on Oceanography**, by R. P. Cuzon du Rest, is now available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, at $1.00 per copy.

Published by the U.S. Naval Oceanographic Office, the 99-page, paperback book lists available oceanographic movies and filmstrips and provides availability addresses.

Film descriptions, running times, recommended types of audience, obtainabilities, and buyable or loanable information are supplied. Most of the films are 16mm, color with sound.

Main film topics covered are General Oceanography, Biology, Chemistry, Engineering, Geology, and Physics. An index, addresses of naval districts, and a list of distribution centers are also included.

The National Oceanographic Data Center assisted in compiling this book, catalog series publication C-4, 1969.

Training Grants to be Awarded

Training grants, authorized by the Federal Water Pollution Control Act (as amended), are awarded to expand and improve training and education in the causes, control, and prevention of water pollution. Funds are available for instructional staffs, equipment, and student stipends.

Grants are awarded to public and private agencies and educational institutions qualified on the basis of a favorable review of their application.

For details concerning training grants, and forms for submission of applications, write to:

Federal Water Pollution Control Administration
Division of Manpower and Training
Training Grants Branch
Washington, D. C. 20242
Phone: (703) 557-7695

Man and His Environment
Available From ACT-NEA

Man and His Environment: An Introduction to Using Environmental Study Areas is the first booklet in a series on "New Developments in Teaching" sponsored by the Association of Classroom Teachers of the National Education Association. The booklet is published by ACT-NEA, in cooperation with Project Man's Environment, American Association for Health, Physical Education, and Recreation.

Man and His Environment presents:

- A brief look at the background of environmental study area programs
- Suggestions for selecting sites and planning programs
- Aids to identifying the educational possibilities of a site and preparing learning activities related to them
- A detailed discussion of the "strand" approach to environmental education
- Sample class activities based on the "strand" approach
- Specific suggestions for different content areas which provide the teacher with springboards for further development
- References for additional help.

Using the five "strands," teachers who have no particular scientific or ecological training can lead students toward open-ended purposeful activities. The five "strands" are: Variety and Similarities, Patterns, Interaction and Interdependence, Continuity and Change, and Evolution and Adaptation.

The 56-page booklet (Stock No. 246-25118) costs $1.75 per copy.

Mail orders to:

NEA Publications-Sales Section 31
1201 Sixteenth Street, N. W.
Washington, D. C. 20036.

Research Fellowships Available

Research fellowships, authorized by the Federal Water Pollution Control Act (as amended), are awarded to increase the number of specialists needed to carry out programs of water pollution control. Fellowships support the specialized education and training of individuals in areas relating to water pollution control.

Fellowships are awarded to qualified individuals on the basis of a favorable review of applications.

For further research fellowship information, and application forms, write to:

Federal Water Pollution Control Administration
Division of Manpower and Training
Training Grants Branch
Washington, D. C. 20242
Phone: (703) 557-7620

ERIC SMAC Compiles and Disseminates Environmental Education Related Materials

Our nation, in fact the world, is in immediate, dire need of information on the environment and ecology. ERIC Science and Mathematics Information Analysis Center staff personnel and selected consultants are answering the call for help. Center researchers are developing a comprehensive information acquisition program for Environmental Education (EE) programs, instructional materials, and instructional resources. The ERIC Information Analysis Center for Science and Mathematics Education is a part of the Educational Resources Information Center, a nationwide information system established by the United States Office of Education.

In addition to developing and maintaining an information acquisition, analysis, and dissemination program for EE, the Center will (1) hold work conferences to review programs, instructional materials, and instructional resources; (2) prepare a series of publications informing target groups of the programs, instructional materials, and instructional resources available, and (3) present a series of regional workshops to state supervisors of environmental education, science education, and social science education to inform them of ERIC materials regarding EE, how to obtain the ERIC materials regarding EE, and potential use of ERIC materials regarding EE.

The project, funded by the U.S. Office of Education, was originated to meet the demand of students, educators, businessmen, and government officials for educational literature concerning our polluted environment.

The comprehensive information acquisition program will compile and assess instructional resources and curriculum materials, then disseminate this information to elementary and secondary schools, junior colleges, colleges and universities; governmental agencies such as USOE, NSF, the Department of Agriculture, the Department of the Interior; and private and corporation projects concerned with the environment.

One of the major tasks to be accomplished by this effort is to survey completed and developmental efforts by all groups identified. Such a survey will utilize address lists of various professional associations, lists of EE programs, and other mailing lists.

A review team will hold work conferences in late 1970 and early 1971 to assess the quality of resources which are currently available and to establish criteria for identification of exemplary programs and materials. Environmental specialists, science educators, social science educators, and other persons will compose the review team.

Publications, including newsbriefs for selected persons; comprehensive listings of programs, instructional materials, and resource materials for the elementary to adult education levels; selective listings of programs, instructional materials, and resource materials for the elementary to adult education levels; listings of government and foundation activities in the area of EE; and journal articles, will be produced to inform target groups about available EE information. The comprehensive, selective, and government and foundation EE activities' listings will be available through the ERIC Document Reproduction Service (EDRS), 4936 Fairmont Avenue, Bethesda, Maryland 20014.

A series of five regional workshops for state supervisors of environmental education, science education, and social science education will be held to develop dissemination programs and to plan future state efforts to insure the continuous flow of EE information in support of effective programs in the nation's schools.

The ERIC Center for Science and Mathematics Education hopes to rapidly establish a data base regarding EE programs and materials for an increasingly important national concern—the environment.

Air Pollution Films Now on Loan

What to do about the air pollution problem is the main topic of films listed in the booklet, **Air Pollution**. The booklet, prepared and distributed by The National Air Pollution Control Administration, is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at $0.15 per copy.

Films listed are loaned free for group showings and should be requested two weeks before showing dates. Titles, producers, film information including T.V. clearances, order numbers, and brief descriptions of the films are provided in the 22-page booklet.

Titles of the 16mm, predominately color films, include: "Don't Leave It All to the Experts," "The Poisoned Air," "Something in the Wind," "With Each Breath," "Beware the Wind," "The Run-Around," "On a Clear Day You Can Almost See Terminal Tower," "Air of Disaster," "Ill Winds on a Sunny Day," "This Business of Air," "It's the Only Air We've Got," "A Matter of Attitudes," "Air Pollution: Take a Deep Deadly Breath," "Pollution," " 'A Day at the Dump,' " "Air Pollution in the New York-New Jersey Interstate Area," "Beware of Ill Winds," and "Air Pollution and You."

The 18 films are loaned by the National Medical Audiovisual Center (Annex), Station K, Atlanta, Georgia 30324.

NSF Sponsors Environmental Studies Program

The National Science Foundation recently awarded $170,600 to the American Geological Institute for a project developing a program in environmental studies.

The Boulder, Colorado project will be directed by William D. Romey and Robert E. Samples, with Dorothy S. Curtis as associate director. Pilot work has been under way for some time in connection with a laboratory development program in Denver's Cole, Merrill, and Lake junior high schools.

Each student will have major responsibility for directing his own study of his immediate environment, defined to include his school building and grounds as well as the neighborhood. Each teacher will serve the needs of students as they are determined during the course of the study. The first areas of study are cause and effect, mapping, and statistics and probability—all to require direct involvement of students in their local environment.

Other major test centers will be New York City, Washington, Chicago (including Gary, Indiana), Los Angeles, and San Francisco.

Marine Science Project Emphasizes Field Trips

Field trips are reality.

Even though students can read about the interrelationship of coastal plants and animals, the evolution of sand dunes, salt marshes, and other natural barriers, and the chemical analysis of sea water—it's all rather distant and meaningless.

But if students observe the interdependency of the plants and animals of the sea, walk on sand dunes retracing their history, and analyze sea water on-the-spot—it means more and is comprehendable.

Originators of the Carteret County Marine Science Project understand the need for students to scientifically observe nature and have done something about it. They have developed ecological oriented field trips for the public school's students, particularly those in grades four through twelve, of Carteret County, located in the middle of the North Carolina coast. These students, progenies of coastal fishermen, are utilizing the area's long-time fountain of fish food as an ecology classroom. The new generation is provided this opportunity to rethink its value judgments on a sea that effects it physically, culturally, and economically. Instead of just reading books about the nation's seashores and innovations in oceanography, students are encouraged to tour their own environment and to study and summarize the subject firsthand.

The plan for the Carteret County Marine Science Project outlined three interrelated approaches:

(1) A program of curriculum development, including teaching units and field trip guides for grades 4-10 and two advanced biology courses, and other special publications.

(2) A program of teaching and in-service training to help develop, test, and use the curriculum materials.

(3) An education center, in the form of a facility to serve as an interpretive center, demonstration area, field trip nucleus, laboratory, reference library, and information center.

Programs developed include:

- **A Tour of Mudflat Town**—a guide for a field trip led by students of the "Marine Ecology" class. (Second Grade)
- **A Day with Don at Cape Lookout Seashore**—third grade supplementary reader. (Third Grade)
- **Don Explores a Tidal Flat**—third grade supplementary reader. (Third Grade)
- **How Sea Animals Live**—fourth grade unit on individual adaptation to marine environment. (Fourth Grade)
- **Living Communities of the Seashore**—a unit in relationship that ties individual plants and animals together in coastal communities. (Fifth Grade)
- **Bogue Sound Treasure Hunt**—a look at life on the bottom of an estuary by dredging up samples. (Fifth Grade)
- **The Ocean and Modern Man**—considers man's role in using coastal resources and affecting environments. (Sixth Grade)
- **Port: Gateway to the World Ocean**—a field trip to a port terminal. (Sixth Grade)
- **Salt Marsh, Sound and Sea Beach**—a survey of coastal areas emphasizing population dynamics; field trip is a cross-section through the Outer Banks. (Seventh Grade)
- **The Sea and Its Boundaries**—a study of coastal processes and oceanography, with a beach field trip. (Eighth Grade)
- **The Field Approach to Coastal Ecology**—two units, one for fall and one for spring, which use coastal environments to demonstrate basic principles of ecology; fall field trip to a salt marsh, spring trip to many other natural communities. (Tenth Grade)
- **Marine Ecology**—a full-year elective course in advanced biology, with emphasis on methods of scientific investigation. (Eleventh and Twelfth Grades)
- **Experiments with Sea Water**—four chemistry analyses suitable for use by regular chemistry classes. (Eleventh and Twelfth Grades)
- **Dune Detective**—a series of field exercises to guide investigators in reconstructing the events which have shaped the natural communities of a barrier beach. (Eleventh and Twelfth Grades)
- **The Field Experience**—a guide for teachers in the rationale and techniques of field ecology. (All Grades)
- **Marine Science Film Catalogue**—description and grade level rating of about 50 movies and filmstrip series. (All Grades)
- **North Carolina: Our Role at the Edge of the Sea**—a summary of the state's marine resources, management programs, and educational opportunities; designed as the framework for a current events high school course called "Coastal Affairs." (All Grades)
- **The Major Natural Communities of the Carolina Coast**—a major volume describing environmental factors, plants and animals of ocean, beach, dune, sound, salt marsh, tidal flat, and jetty habitats. (All Grades)
- **A Checklist of Molluscs of N. C.**—an unillustrated tabulation of species and ecological preferences. (All Grades)
- **The Regional Marine Science Project**—a description of experiments in the school use of field ecology as an approach to understanding coastal environments. (All Grades)

An interpretive center (Sea Lab) is scheduled for construction by the state this year. Upon completion, the center will utilize materials developed by the Marine Science Project on a state-wide basis. School systems will receive teaching units and field trip services at cost. In-service training will be supported by grants. The general public and special interest groups will also utilize the center.

Conservation Films Available

The United States Department of the Interior has released its **1969-70 Listings of . . . Conservation Films . . . and Related Natural Resource Film Subjects.** Most films are 16-millimeter with sound and color.

Film topics include: Water Pollution, Wildlife Resources, Mineral Resources, Outdoor Recreation, National Park System, Geology and Earth Sciences, Commercial Fishing and Fish Cookery, Water Resources, Public Land Resources, and States and Their Natural Resources.

The list of conservation films provides film titles, short film content explanations, and ordering addresses and information.

The list is available from:

United States Department of Interior
Office of the Secretary
Washington, D. C. 20240.

Drug Abuse Information Available From National Clearinghouse

Questions individuals have on drug abuse may now be answered by the newly formed National Clearinghouse for Drug Abuse Information, operated by the National Institute of Mental Health. President Richard M. Nixon's creation of a federal resource to answer the public's inquiries on drug abuse programs provides three basic services: publications distribution services, information storage and retrieval services, and referral services.

Publications Distribution Services—Upon request, up-to-date drug abuse information compiled by cooperating government agencies is forwarded to concerned citizens. The **Federal Source Book: Answers to the Most Frequently Asked Questions About Drug Abuse** is now available. Educational materials, selected school curricula, bibliographies, film guides, and catalogs are being prepared. Single copies of publications are free. Bulk quantities are available at cost from the U.S. Government Printing Office. Requests for single copies of publications should be sent to:

Publications
National Clearinghouse for Drug Abuse Information
WT 240
5454 Wisconsin Avenue
Chevy Chase, Maryland 20015

Information Storage and Retrieval Services—Detailed data on school, community, and local and state government drug abuse programs are retrieved on requests from those concerned with establishing and maintaining effective drug abuse prevention and rehabilitation programs.

Referral Services—Technical and scientific inquiries of a specialized nature are referred to appropriate federal and non-federal agencies for reply. Such agencies as the Department of Defense, Department of Justice, Department of Labor, Office of Economic Opportunity, Office of Education, are cooperating as points of referral.

Air Pollution Publications Bibliography Available

Air Pollution Publications: A Selected Bibliography With Abstracts 1966-1968 is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, at $4.50 per copy.

Information was compiled by the Science and Technology Division Library of Congress for the National Air Pollution Control Administration.

Main topics covered in the 532-page, paperback book are: General Aspects, Emission Sources, Atmospheric Interactions, Measurement, Control Methods, Biosciences and Medicine, Plants, Materials Deterioration, Air Quality, Legal and Administrative Aspects, Social Aspects, and Basic Science and Technology. Author and subject indices are also included. The special addendum section "extends the coverage of the bibliography to the air pollution literature appearing in the last quarter of 1968 (and even January 1969) in a few cases."

The book is Public Health Service Publication No. 979.

State Air Pollution Laws Available in Digest

A 561-page, paperback book, **A Digest of State Air Pollution Laws 1967 Edition,** is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402, at $2.75 per copy.

In addition to state air pollution control legislation, the appended "Air Quality Act of 1967" (Public Law 90-148) is included. The National Center for Air Pollution Control, a subdivision of the U.S. Department of Health, Education, and Welfare produced the book, Public Health Service Publication No. 711.

Environmental Health Films Available

Several films on environmental health are now available on a short-term loan basis from:

Office of Public Information and Education
Environmental Control Administration
U. S. Department of Health, Education, and Welfare
12720 Twinbrook Parkway
Rockville, Maryland 20852.

Film topics include: Solid Waste Management, Occupational Safety and Health, Community Environmental Management, and Radiological Health.

The 16mm films range from 15 to 45 minutes and many are color with sound.

Research Grants and Contracts Available

Research grants and contracts assist in supporting basic and applied research projects relating to the causes, control, and prevention of water pollution. They support projects in the field of water pollution control which are directed toward the discovery and development of new information and technology in the chemical, physical, biological, and social sciences, in engineering, and in administrative aspects related to:

(a) Identification of pollutants
(b) Fate and persistence of pollutants
(c) Effects of pollutants on water uses
(d) Treatment processes
(e) Non-treatment methods of pollution control
(f) Ultimate disposal of pollutants.

Grants and contracts, authorized by the Federal Water Pollution Control Act (as amended), are awarded to public or private agencies, institutions, and individuals.

For details concerning research grants and contracts, and application forms, write to:

Federal Water Pollution Control Administration
Office of Research and Development
Project Coordination
Washington, D. C. 20242
Phone: (703) 557-7695

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Center Comments

During the past several months we have been reviewing various activities and products of **ERIC/SMAC**. With the addition of mathematics education and environmental education to the scope of the Center, we have decided to issue separate newsletters for science education, mathematics education, and environmental education.

Newsletters related to environmental education are being released eight times a year on a monthly basis October through June. These newsletters contain information regarding instructional materials, educational programs, research grants, current events in environmental education, bibliographies of resource material, and information regarding federal programs. Copies of the October issue are available on request.

Separate newsletters related to science education and to mathematics education will be released four times a year beginning in the Spring of 1971. Separate issues for each field will provide space for short research reviews and special bibliographies. These publications will replace the current combined newsletter which has also been released four times a year.

New mailing lists are currently being developed for these three publications. A form is enclosed for you to indicate which newsletter(s) you would like to receive. Please return the form to **ERIC/SMAC** with the information requested. Newsletters released after April 1, 1971 will use the new mailing lists.

Robert W. Howe
Director

Environmental Law Available

"The application of law to problems of the environment and ecology" is the topic of a new journal called **Environmental Law**. Northwestern School of Law and Lewis and Clark College in Oregon publish the journal twice a year. Subscriptions are $6.00 per year or $3.00 per issue (three issues will be produced in the first year of publication). Copies may be obtained from:

Northwestern School of Law
10015 S.W. Terwilliger Boulevard
Portland, Oregon 97219.

The Nature Conservancy Seeks Members

"The Nature Conservancy is a member-governed organization incorporated in the District of Columbia for non-profit educational and scientific purposes." The national office is located at 1800 North Kent Street, Arlington, Virginia 22209.

Regional offices are: Western Regional Office, 215 Market Street, San Francisco, California 94105; Eastern Regional Office, 1800 North Kent Street, Arlington, Virginia 22209; and Midwest Regional Office, 329 West 15th Street, Park Terrace Building, Minneapolis, Minnesota 55403.

Incorporated in 1951, the Conservancy's first effort at land-saving was the Mianus River Gorge in Westchester County, New York, in 1954. This endeavor was the forerunner of 400 projects, located in 42 states and totaling more than 190,000 acres. The Conservancy works with scientific and conservation organizations; and municipal, state, and federal governments. This organization "rallies the skills, the techniques, and the funds actually necessary to save land."

Classes of regular membership are: Junior (18 and under), $2.00; Regular, $5.00; Sustaining, $10.00; Contributing, $25.00; Supporting, $50.00; Guarantor, $100.00; Sponsor, $500.00; and Patron, $1,000.00. Life membership in The Nature Conservancy is conferred upon the payment by an individual of $300.00 designated for the Guarantee & Income Fund. Securities in which the fund is invested may be used as collateral for loans to aid land preservation projects which the Board of Governors recommends for interim financing. Income from the investments supports the national and chapter operations of the Conservancy.

Members receive **The Nature Conservancy News**, edited by Mary Jean Cleveland, published in Arlington, Virginia. The **News** lists lands owned by The Nature Conservancy, lands controlled by conservation easements, or under purchase contract. The listing, in alphabetical order according to states, contains the name of the land, acreage, description, and status (land formerly owned by the Conservancy, now conveyed to others or preserves in the establishment of which The Nature Conservancy played some role).

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Data Center Provides Oceanographic Information

The public, academic and research institutions, industry, and the government may obtain marine data and products from the National Oceanographic Data Center (NODC). NODC processes, exchanges, and stores globally collected marine data and information, and then, upon request, disseminates the information in magnetic tape, punched card, microfilm, and hardcopy forms.

Various interests are pursued by NODC's sponsors: Atomic Energy Commission, Bureau of Commercial Fisheries, Coast Guard, Coastal Engineering Research Center, Department of the Navy, Environmental Science Services Administration, Federal Water Pollution Control Administration, Geological Survey, Department of Health, Education, and Welfare, and the National Science Foundation.

Four divisions operate under NODC:

Operations Division—	processes data input.
Services Division—	provides summaries, copies, analysis and information services upon request.
Development Division—	developes systems, ensures implementation, and introduces new applications.
Computer Systems Division—	provides computerized high-speed processing, direct-access retrieval, and cathode-ray tube (CRT) display with the IBM 360/40 computer system.

Data and publications are gathered by exchange with individuals and organizations in 45 nations and international groups, such as the International Council for the Exploration of the Seas (ICES). Liaison officers are located in certain key areas of the U.S. National data centers in other countries provide data. The World Data Center system, including World Data Center A, Oceanography (WDC-A), administered by NODC, receives input from international cooperative investigations, Declared National Programs (DNP), and other sources.

The Guide to Submission of Data is available to those wishing to send data to NODC.

A data inventory, known as the National Marine Data Inventory (NAMDI), is collected by the NODC. It contains information on quantities and types of data, area of operations, and responsible personnel. Input is from major U.S. activities contributing to the national marine science effort.

NODC's oceanographic data is the world's largest usable collection. Many types of data and services are provided. To request these services include: (1) a definition of data desired, (2) limits of geographic area, and (3) any other information pertinent to assist in filling a request (for example, information on the research or operational problem for which the data are required).

Cost depends upon the number of observations involved, special analysis required, computer time used, and materials. Requests for small amounts of information are provided free; otherwise, a cost estimate is presented to the requester and work begun on receipt of funds.

The **User's Guide for NODC's Data Processing Systems,** available upon request, contains detailed information concerning data holdings.

For further information, write:

National Oceanography Data Center
2nd and M Streets, S.E.
Building 160
Washington, D.C. 20390
OR
Telephone: (202) 693-3700.

Visitors are welcome, however, advance notice is desirable.

Pollution Abstracts Available

Pollution Abstracts, published six times a year, contains citations/abstracts of pertinent works related to pollution. A subject index, author index, and publications list are included in each issue.

Topics covered include: Air Pollution, Fresh-Water Pollution, Pesticides, Marine Pollution, Noise Pollution, Land Pollution, Thermal Pollution, Waste Treatment, General Pollution, and Governmental Activities.

Materials reviewed include: domestic and foreign technical reports, contracts, journals, symposia, governmental documents, patents, and newspapers.

Introductory subscription price is $35.00 for the 1970 calendar year (regular subscription price $70.00). This subscription starts with Volume 1, Number 1, 1970 with almost 4,000 citations/abstracts in the first three issues. In 1971, there will be 2,000 citations/abstracts each issue.

For ordering information, write:

Pollution Abstracts
c/o Oceanic Library and Information Center
P.O. Box 2369
La Jolla, California 92037.

Wood Products Kits Available

Wood Products Kits, containing twenty wood samples, wall charts, booklets, explanation cards, and other miscellaneous teaching aids, are available from:

Regional Forester
U.S. Forest Service
Eastern Region
633 West Wisconsin Avenue
Milwaukee, Wisconsin 53203.

Although visual aid kits are being distributed to educators and consultants on many levels, departments of public instruction and natural resources, and special youth groups, several are available on a first request basis.

The kits supply a list of contributors of specialty items, suggestions for displaying the kit, and answers—explanations—additional questions—and suggested activities.

Examples of the wood samples provided include: cones, tree seeds, chips, paper samples, dowels, log slices, and insulation boards. Titles of the wall charts are "Growth of a Tree" and "Products of the Tree Farm." Booklets included are **Growth of a Tree, It's a Tree Country,** and **The Life of the Forest.** A card, containing background information and commercial uses of the particular wood sample, is provided for each of the twenty specialty items.

IUCN . . . to Save the Biosphere, Atmosphere, and Hydrosphere

The International Union for Conservation of Nature and Natural Resources (IUCN) represents "those who are concerned at man's massive and rapid modification of the natural environment, and his excessive impoverishment of the earth's natural resources."

IUCN's membership comprises states, governmental and private organizations, and international groups. As of 1968, 27 governments and more than 200 organizations from 58 countries throughout the world were official members.

Although this independent international organization is not a United Nations (UN) organization, it maintains the support of and consultative status with UN agencies, such as the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the Food and Agriculture Organization (FAO), and the Economic and Social Council of the United Nations (ECOSOC). Cooperation is also received from the Council of Europe, Organization of African Unity, and other inter-governmental bodies.

The six IUCN Commissions are:

Survival Service Commission—was "formed in 1949 to prevent the extermination of threatened species of wildlife. It investigates the status and ecology of rare species of plants and animals and gives advice and help in safeguarding them and the habitats upon which they depend. The Commission maintains a list of threatened species and institutes appropriate action to safeguard them."

Commission on Education—"is primarily responsible for educational aspects of the Union's work and acts as a clearinghouse for educational material relating to the conservation of nature and natural resources. The Commission uses the press, radio, films, and television for the advancement of conservation education. Regional committees, thus far formed for North-West Europe, North-East Europe, and North America, ensure that its activities take effective account of local conditions and needs."

Commission on Ecology—"serves as the primary scientific advisory body for the Union. It gives advice on proposed projects, sponsors scientific meetings, assists with the technical aspects of general assembly programs and maintains liaison with the International Biological Program. Within the Commission smaller committees have been formed to specialize in the Ecological Aspects of Soil and Water Conservation and the Ecological Effects of Chemical Controls (pesticides) and the Ecological Problems of Introductions (plant and animal)."

Commission on Legislation—"has two basic functions. It provides information on legislation or regulations concerning conservation of nature and natural resources to governments, parliaments and their members, and to national and international organizations. It also advises governments, parliaments, and other authorities on proposed legislation or regulation, including international agreements and conventions. The Commission may, in response to requests or on its own initiative, take steps to advise authorities on projects, or to help strengthen legal and administrative support for the rational use of natural resources. Continuing collection and analysis of pertinent legislation on a world-wide scale is essential to the work of the Commission."

Commission on Landscape Planning—was "formed in 1966 from a committee of the Commission on Ecology. This Commission is concerned with the relations of man and his environment. Since man's present well-being, and indeed his future survival, depends upon how well he uses and manages the earth's natural resources, planning for land use assumes a position of urgent and vital importance. Landscape, or land use matters involve a variety of scientific disciplines, as well as many different social and economic conditions, and political structures. In this complex climate, the mission of the IUCN Commission on Landscape Planning is to provide scientific guidance for environmental management."

The ERIC Information Analysis Center for Science and Mathematics Education will be producing separate newsletters for three interest groups. After March 1, 1971 newsletters will be mailed only to persons who have returned an address form.

1. Please indicate which newsletter(s) you want to receive.
   _____ Environmental Education
   _____ Science Education
   _____ Mathematics Education
2. Name _____
   Address _____
   City _____ State _____
   Zip Code (for U.S.) _____ Foreign Country _____
3. Current Position
   Title _____

Clip and mail to: ERIC Information Analysis Center for
Science and Mathematics Education
1460 West Lane Avenue
Columbus, Ohio 43210

International Commission on National Parks—"specializes in encouraging the establishment of national parks throughout the world, exchanges information on the management of existing parks and makes arrangements for international conferences dealing with national park problems. With the support of ECOSOC and in cooperation with the UN, the Commission also maintains a list of the world's national parks and equivalent reserves."

"Friends of IUCN" are divided into four categories of individual supporters: Life Member (a single payment of $200.00); Sustaining Member ($50.00 per annum); Benefactor ($15.00 per annum); and Friend ($3.00 per annum). All members receive the quarterly Bulletin of IUCN world-wide activities.

Independent states may join the Union by notifying the Secretary General of the Union of their adherence to its statutes. Other government services or departments, and organizations, institutions or associations concerned with the conservation of nature and natural resources, may become members when their applications have been unanimously accepted by the executive board and ratified by the general assembly. Individuals may become Friends upon acceptance of applications and fees by the Secretary General. For further information write:

International Union for Conservation
of Nature and Natural Resources
1110 Morges, Switzerland

Telegraphic address:
UNICORN, MORGES.

Environmental Peace Corps Applications Available

Applications for a new joint Peace Corps-Smithsonian Institution international environmental program are available from:

The Office of Ecology
Smithsonian Institution
Washington, D.C. 20560.

Both agencies plan to extend the work of the Peace Corps into such areas as water pollution, forest management, and park development.

Volunteers will be recruited by the Smithsonian and selected by both agencies in conjunction with the host country. They will live as do other Peace Corps volunteers in the community they serve. "Most of the volunteers are expected to come from post-graduate schools in biological sciences and natural resource management," Smithsonian Secretary S. Dillon Ripley said.

Peace Corps Director Joseph Blatchford and Secretary Ripley announce the following plans already underway: "16 volunteers with skills ranging from ecology to watershed management are to help Costa Rica develop national parks and manage forest resources; 12 volunteers with scientific and natural resource skills are to help Columbia establish a national conservation program; and three volunteers are to work on saving endangered species in the Philippines."

Scope of Coverage

The ERIC Information Analysis Center for Science and Mathematics Education is responsible for research reports and other documents related to all levels of environmental, science and mathematics—elementary, secondary, higher, and adult and continuing education. Included are those reports concerned with the clarification of environmental, science and mathematics objectives; development of curriculums and teaching materials; applications of media to environmental, science and mathematics education, with related methodological or evaluation studies; reports on the impact of such factors as interest, intelligence, values, and concept development upon learning in environmental, science and mathematics; and any reports bearing on related preservice and inservice teacher education and supervision in environmental, science and mathematics programs.

Technical Assistance Programs Gather Information

Before technical problems concerning water pollution can be solved, a wide range of information is needed. The Office of Operations, the fact-finding arm of the Federal Water Quality Administration (FWQA), gathers information, evaluates it, and provides results to the states and cities striving to clean up the nation's polluted waters.

Information plus assistance by experts is also available to other units of FWQA to help in the offensive against pollution.

Determining the most efficient means available for dealing with difficult pollution problems is the main duty of the Division of Technical Support. At the request of a state, scientific and engineering staffs of this office assist in working out solutions to the problems. Assistance activities vary from providing information by telephone or mail to conducting field investigations that continue for several months and involve teams of engineers, biologists, bacteriologists, physicists, hydrologists, and economists.

"STORET" SYSTEM

Another function of the Division of Technical Support is the collection, evaluation, storage, and distribution of detailed information on stream conditions, water quality and uses, sewage treatment facility construction, industrial and municipal wastes, fish kills caused by pollution, and other technical data.

STORET, a computerized storage and retrieval system, handles data available for use in special comprehensive river basin development studies, and for engineering analyses or other water pollution control work. The storehouse may be utilized by all governmental agencies and units—federal, state, interstate, and local.

STREAM MONITORING STATIONS

The division operates 900 stream monitoring stations on interstate streams throughout the U.S. Some stations record stream characteristics and others gather water samples for later laboratory analysis.

Other division activities include a group of experts in Cincinnati, Ohio who respond to problems associated with radiological and industrial wastes and their potential for water pollution, technical assistance concerning pesticides' problems, and basin planning.

For further information, write:

U.S. Department of the Interior
Federal Water Quality Administration
Office of Operations
Arlington, Virginia 22203.

Forest Service Films Available

A 34-page booklet, **Forest Service Films**, is available from:

Motion Picture Service
Office of Information
U.S. Department of Agriculture
Washington, D.C. 20250.

The booklet, FS-31, lists 16mm sound forest films available on loan to schools, civic groups, churches, and television for educational purposes.

Topics covered in the pamphlet are: General Information, How to Apply for Loan of Films, Where to Apply, General Interest Films with Descriptions, Smokey Bear Fire Prevention Films, and Forest Service Training Films. An index of titles is also included.

A complete catalog of all films of the U.S. Department of Agriculture may be obtained by writing to the above address.

Epidemic Problems for Presentation Available from NCDC

Epidemic Problems for Presentation are a group of epidemic reports which illustrate fundamental principles of acute disease epidemiology. Data from these reports have been reproduced on 2 x 2 slides and on overhead transparencies suitable for class presentation. This National Communicable Disease Center developed teaching method is explained in a blue, 4-page booklet, **Epidemic Problems for Presentation**. The booklet features: explanatory paragraphs of problems, classification of acute disease outbreaks, and slide ordering information. The publication may be obtained from:

National Communicable Disease Center
Attention: Chief, Health Professions
Training Section
Training Program
Atlanta, Georgia 30333.

Simulated Health Education Materials Available

Dixon, Tiller County, U.S.A. is a simulated community developed by the Training Branch of the National Communicable Disease Center (NCDC) to be used as a teaching reference for unidiscipline or multidiscipline courses in many areas of public health. Using Dixon, Tiller County, NCDC publishes a collection of organized information that reflects a contemporary urban-rural complex. Known as a teaching reference community, this frame of reference is based on data selected from public health records and other information on actual political subdivisions.

The 16mm color film, "Dixon, Tiller County, U.S.A.," may be used to introduce the community, its officials, and residents. Color slides (2" x 2") which show specific details concerning the health department, schools, major industries, public works installations, downtown city and county buildings, hospital and other health-related facilities, and their activities, are also available.

Publications, including basic descriptive data, census data, vital statistics, health and environment surveys, and other reports, are available. Maps are also available.

Courses using the Dixon, Tiller County data have been developed. They are Environmental Control of Communicable Disease, Administration in Environmental Health, and Epidemiology in Environmental Health.

NCDC claims the following advantages in using the teaching reference community in teaching:

- Brings realism into the classroom
- Simulates characteristics basic to all U.S. communities
- Creates a common frame of reference in which all participants can work
- Accommodates diverse investigations simultaneously and in quantity
- Permits adaptation to specific situations through interpolation, deletion, and manipulation
- Permits transfer of theory into practice by applying principles to concrete data
- Eliminates development, preparation, and explanation of background data
- Eliminates reticence in the criticism of faults detected through analysis of data

For further information on Dixon, Tiller County, explanatory pamphlets may be obtained from:

National Communicable Disease Center
Attention: Training Branch
Community Services Training Section
Atlanta, Georgia 30333.

Communicable Disease Center Offers Self-Teaching Lessons

New self-teaching lessons available from the Communicable Disease Center (CDC) include: Amebiasis: Laboratory Diagnosis, Food-borne Disease Investigation: Analysis of Field Data, Insecticide Formulation, and Operation and Maintenance of a Portable Sprayer.

Each lesson was developed by the CDC's Instructive Communications Unit (Training Branch) to teach persons related to each field about a certain topic.

To obtain copies of the self-instruction announcements, write:

National Communicable Disease Center
Attention: Training Program
Instructive Communications Unit
Atlanta, Georgia 30333.

NCDC Training Bulletin Available

The 124-page **NCDC Training Bulletin: January 1, 1970 through June 30, 1971** is available from:

National Communicable Disease Center
Attention: Training
Atlanta, Georgia 30333.

The booklet was published under the auspices of the Public Health Service (U.S. Department of Health, Education, and Welfare).

Topics covered in the bulletin are: The Purpose of National Communicable Disease Center Training, Eligible Organizations, Services, Community Demonstrations, Seminars, Consultation, Types of Courses, and Subjects. Subjects described include: Tuberculosis, Venereal Diseases, Epidemiology, Foodborne Diseases, and Vectorborne Diseases and Their Control. A calendar of courses and list of NCDC staff members are included. An index to course titles, by discipline or occupation and by course number, is provided.

Pamphlet Explains Public Health Courses

A blue, 6-page pamphlet, **IF you are interested in public health . . .**, explains eight National Communicable Disease Center homestudy courses of which five are now available to the public.

Subjects offered include: Community Hygiene, Communicable Disease Control, Vectorborne Disease Control, Waterborne Disease Control, and Foodborne Disease Control.

Each course is divided into lessons containing reading or other assignments. After completing each lesson, the student answers an open-book quiz and sends his work in for grading. When all lessons have been completed, a closed-book comprehensive examination is sent to a proctor who has been preselected jointly by the student (or his agency) and the Center.

The Center charges neither for the courses themselves nor for the reference material that it furnishes. However, if a course requires a textbook, the student must arrange for this item.

Eligibility for enrollment is based on an applicant's total experience and, where applicable, academic education. Individuals may apply for enrollment by sending a PHS "Training Application," available from the U.S. Department of Health, Education, and Welfare Regional Offices, to the Center (address given below).

The pamphlet may be obtained from:

National Communicable Disease Center
Attention: Training Program
Homestudy Activity
Atlanta, Georgia 30333.

SMAC

Dr. Robert W. Howe
Director

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Mathematics Education

Dr. Stanley L. Helgeson
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1460 West Lane Avenue
Columbus, Ohio 43221

SMAC

ERIC

1970 Environmental Legislation

Greenbacks Appropriated for Green Grass, Clean Air and Clear Water

—Cassandra Balthaser—

Who was it:

Nader's Raiders revealing pesticide invested foods,
College students protesting the trash surplus,
Mothers crying for clean air for their posterity,
Hometown citizens complaining about polluted recreational lakes,
Professors warning of the extinction of several wildlife species,
Reporters popularizing pollution terms by daily referral to our environmental crisis, or
Environmental specialists urging action before it's too late?

Someone influenced United States Congressmen!

What was it:

Smog over the Potomac,
Crowded, garbage-filled inner cities,
Contaminated foods announced weekly,
Dead fish scattered on the beach,
Polluted waters from oil spills,
Odor from car exhaust and industrial smoke, or
Noise, ranging on the spectrum from garbage disposals to supersonic jets?

Something alarmed governmental lawmakers!

In 1970, the multitude presented the magnitude of a morbid environmental situation and thus touched the morality of majestical men (Congressmen). These men in the second session of the 91st Congress passed an encouraging amount of antipollution legislation to clean up the environment and keep it livable.

New laws, amendments to old U.S. laws, and increased appropriations for federal agencies running environment-related programs were passed. In addition to amendments to U.S. laws on air pollution, water pollution, solid wastes management, and legislation on population control, the establishment of an Environmental Education Act will provide environmental education for citizens of all ages.

Two reorganization plans established (1) an Environmental Protection Agency (EPA) and (2) a National Oceanic and Atmospheric Administration within the Department of Commerce (NOAA).

EPA

EPA is to initiate and enforce pollution control standards so as to "protect the environment by abating pollution." EPA incorporates into one agency a variety of research, monitoring, standard-setting, and enforcement activities formerly dispersed among several federal departments and agencies.

According to the **Weekly Compilation of Presidential Documents**, Volume 6 Number 28, July 13, 1970, President Nixon states the following EPA guidelines to pollution control:

(1) Identify pollutants.
(2) Trace them through the entire ecological chain, observing and recording changes in form as they occur.
(3) Determine the total exposure of man and his environment.
(4) Examine interactions among forms of pollution.
(5) Identify where in the ecological chain interdiction would be most appropriate.

EPA roles and functions assigned are:

(1) The establishment and enforcement of environmental protection standards consistent with national environmental goals.
(2) The conduct of research on the adverse effects of pollution and on methods and equipment for controlling it, the gathering of information on pollution, and the use of this information in strengthening environmental protection programs and recommending policy changes.
(3) Assisting others, through grants, technical assistance and other means in arresting pollution of the environment.
(4) Assisting the Council on Environmental Quality in developing and recommending to the President new policies for the protection of the environment.

NOAA

Recognizing that the oceans of our planet cover three-fourths of the earth's surface, special research for environmental upgrading, oceanographic exploring, and marine resource developing this large portion of the earth is essential. Thus, the National Oceanic and Atmospheric Administration (NOAA) brings together in one administration federal programs dealing with the seas and atmosphere.

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Functions of NOAA include:

(1) Display leadership in developing a national oceanic and atmospheric program of research and development.
(2) Coordinate its own scientific and technical resources with the technical and operational capabilities of other government agencies and private institutions.
(3) Continue to provide those services to other agencies of government, industry and private individuals which have become essential to the efficient operation of the transportation systems, agriculture and national security.
(4) Maintain close liaison with the EPA and the Council on Environmental Quality as part of an effort to ensure that environmental questions are dealt with in their totality and that they benefit from the full range of the government's technical and human resources.

Several other types of antipollution legislation were ratified.

POPULATION

Many environmentalists believe over population is at the core of earthly pollution problems. (More people means more car exhaust in the atmosphere, more detergent in the water, and more trash in the streets.) Keeping this in mind, the 91st Congress documented Title X—Population Research and Voluntary Family Planning Programs, an amendment to the Public Health Service Act, a new title which provides for a three-year birth control research and education program. Encompassed in the new Title X are provisions for family planning services, family planning research, and family planning information. Grants and contracts with public and nonprofit groups to establish and operate voluntary family planning projects and to train personnel to put into practice family planning service programs were approved. Also, funds will be allocated to public and nonprofit private and individuals for (1) research and research training projects in family planning and (2) to develop and make available family planning and population growth information (educational materials included). Topics qualifying for research grants include biomedical, contraceptive development, behavioral, and program implementation fields related to family planning and population.

Thus, the government has made an effort to control the population factor in the Population/Production/Pollution chain reaction.

AIR

Automobile manufacturers must meet a 1975 deadline for 90% control of automobile exhaust emissions according to the National Air Quality Standards Act of 1970.

During the much debated deadline for automobile industries, Senator Edmund Muskie (D.-Me.) commented, "Detroit has told the nation that Americans cannot live without the automobile. This Legislation would tell Detroit that if that is the case, then they must make an automobile with which Americans can live." (Approximately 90 million vehicles are polluting the U.S. today.)

Included in Section 213 (awaiting signature) of the new air law is the provision for the procurement of special low-emissions vehicle standards for research and development purposes. The Section will enable researchers to determine whether technology is available for a low-emissions vehicle by 1975.

Another provision of the Act bolsters the public's role in fighting air pollution. Citizens can now instigate action against polluters under certain circumstances and participate in the development of implementation plans.

The bill also documents the establishment of national air quality standards for ten major contaminants. In addition, newly constructed sources of pollution, such as power plants and industrial mills, will be required to use the newest pollution control devices. Civil penalties will be charged for violations.

New concepts mentioned in the 1970 air amendment include national ambient air quality standards, standards of performance for industrial plants, and certification of performance. The new term "standards of performance," referring to the degree of emission control which can be achieved through process changes, operation changes, direct emission control, or other methods, enters federal legislation for the first time during the 1970's. This will apply to approximately 19 stationary emissions sources, including emission standards for 14 selected agents. Standards will become effective in less than two years.

Appropriations monetarily amounting to more than last year's were granted to the Departments of Labor and Health, Education, and Welfare for the fiscal year of 1971 for air pollution.

WATER

Control of water pollution by maintaining oil standards ranked high among the areas of water antipollution measures to be enforced through the Water Quality Improvement Act of 1970.

Section 11, added to the Federal Water Pollution Control Act, prohibits all oil discharges into or upon the navigable waters, adjoining shorelines, or the contiguous zone of the United States. Onshore and offshore facilities plus vessels are included in this prohibition.

Whenever any discharge occurs, the person in charge of the vessel, onshore or offshore facility, must immediately notify the federal government. Failure to do so entails a fine of $10,000 or imprisonment for not more than one year, or both.

A revolving fund of $35 million is established to finance removal of oil and other hazardous materials.

The legal liabilities for the costs of cleaning up discharges are willful negligence or willful misconduct and all other situations ordinarily negligent. The Coast Guard may assess a civil penalty of not more than $10,000 for each offense.

Also stated in the provisions to control pollution by oil is a measure requiring a vessel over 300 gross tons to establish evidence of financial responsibility of $100 per gross ton or $14 million, whichever is less, before using U.S. ports or navigable waters.

Section 12 provides for the control of hazardous polluting substances.

Section 13 is concerned with controlling the discharge of sewage from vessels into the navigable waters of the U.S. Of major importance, new vessels are required to meet standards within two years after they are established and existing vessels have within five years.

Section 21 requires each federal agency having jurisdiction over any real property or facility or engaged in any federal public works activity to insure compliance with applicable water quality standards and the purposes of the Federal Pollution Control Act.

Other provisions of the Water Act include:

(1) Acid Mine Pollution,
(2) Great Lakes Pollution Control,
(3) Training Grants and Contracts,
(4) Alaska Village Demonstration Projects,
(5) Research, Development, and Demonstration, and
(6) Office of Environmental Quality.

Public Works water pollution appropriations are to be used for construction of waste treatment facilities and research. Appropriations were also given to HEW for water hygiene. Housing and Urban Development (HUD) funds (awaiting signature) include money for water and sewage programs. Transportation's appropriations contain $35 million for oil spill cleanup, the amount authorized under the Water Quality Improvement Act.

Environmental Science & Technology, Volume 5 Number 1, January, 1971, cites the following major features of water control bills to be proposed in the next Congressional session:

(1) New environmental financing authority.

(2) Effluent charge considerations, earlier introduced by Sen. William Proxmire (D. Wis.).

(3) Speeding up the enforcement of conference procedures established by existing law, with elimination of hearing phase.

(4) Inclusion of an effluent discharge requirement as an additional element in a state's implementation scheme to achieve its water quality standard.

(New statutory authority for water pollution control failed to pass since water legislation does not expire until June 30, 1971. Whereas, air and solid wastes expired June 30, 1970.)

SOLID WASTES

The Resource Recovery Act of 1970 includes funds for: (1) construction of improved solid waste disposal facilities including innovative disposal facilities and (2) demonstration of area-wide resource recovery systems. Although funds for these purposes are deferred till fiscal 1972 and 1973, some grants to states as the demand compels are available for the fiscal 1971.

Also included in the Act are provisions for solid waste training grants to establish or expand training through support for personnel, student stipends and tuition, faculty expansion, facility improvement, necessary equipment and supplies, and other program expenses. Grants are allotted for work on advanced degrees in such fields as civil, chemical, sanitary, agricultural, and industrial engineering; the agronomic sciences; and urban planning.

The 1970 legislation provides for grants and contracts with eligible organizations offering training projects. Persons will be trained for the management, supervision, design, operation, or maintenance of solid waste disposal and resource recovery equipment and facilities. Training for instructors and supervisory personnel will also be provided.

Appropriations to HEW were granted for solid waste management.

EDUCATION

Educating man to live with his environment, is the goal of the Environmental Education Act. Funds provide for the development of multi- and interdisciplinary curricula for levels ranging from preschool to graduate. Curricula for environmental studies will be pilot-tested before they are disseminated.

The Act stresses education dealing with the relationship of man to his environment—population, resource allocation and depletion, conversation, technology, and urban and rural planning.

Grants will be available for:

(1) Preparation and dissemination of materials and development of programs.

(2) Preservice and inservice training programs on environmental quality and ecology.

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   _____ Environmental Education
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2. Name _____
   Address _____
   City _____ State _____
   Zip Code (for U.S.) _____ Foreign Country _____
3. Current Position
   Title _____

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(3) Community education programs designed especially for adults.

(4) Planning of outdoor ecological study centers.

(5) Initiation and maintenance of environmental education programs at the elementary and secondary school levels.

Relevant to this Act is the ERIC Information Analysis Center for Science and Mathematics Education (SMAC) environment program. ERIC Center personnel and selected consultants are developing a comprehensive information acquisition program for Environmental Education (EE) programs, instructional materials, and instructional resources. SMAC is one of the twenty clearinghouses in the ERIC (Educational Resources Information Center) network, a nation-wide information system established by the U.S. Office of Education. After acquiring environmental materials, SMAC staff analyzes and disseminates EE materials.

NUCLEAR ENERGY

Thirteen western states (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming) were granted the right to engage in peaceful use of nuclear energy under the Western Interstate Nuclear Compact. The Southern Interstate Nuclear Compact was approved by Congress in 1962.

PESTICIDES

The Agricultural Department's Agricultural Research Service was funded for fiscal 1971 and includes two components of EPA: pesticides registration funding and pesticides monitoring program funding.

NOISE

The federal government allotted an increased sum (over last year's) for fiscal 1971 for noise pollution.

OTHER APPROPRIATIONS

HEW received funds for radiological health, and HUD for open space program, urban renewal, model cities program and neighborhood facilities grants programs.

OTHER BILLS

Other Congressional bills of environmental importance include:

THE YOUTH CONSERVATION CORPS—300 summer jobs for young people will provide labor for conservation projects in the Departments of Interior and Agriculture.

THE INTERNATIONAL ANIMAL QUARANTINE STATION—A sanctuary in the Pacific Islands is provided for animals who are prevented by quarantine laws from entering the country.

THE RIVER BASINS AUTHORIZATION—During 1970-71, this organization will continue the work on 13 flood control projects for river basins.

THE SALINE WATER APPROPRIATIONS—Allotted funds to continue saline water research for fiscal 1971.

THE POINT REYES NATIONAL SEASHORE—The California seashore organization will receive funds to purchase additional land.

THE CAPE COD NATIONAL SEASHORE—The Massachusetts based group will receive funds to purchase additional land.

AIRPORT AND AIRWAY ACT—Environmental protection is made mandatory for each new airport project under one of the provisions of this bill.

In the interest of man, in this case the scientist, and his relationship to the environment, two humane treatment bills relating to animals and humans were passed.

Humane Standards Set

RESEARCH ANIMALS

Humane standards set by the Secretary of Agriculture include requirements for the purchase, sale, handling, treatment, care and transportation of all warm-blooded research animals. Minimum requirements regarding housing, feeding, watering, sanitation, ventilation, shelter, separation by species, and adequate veterinary care have been set. Standards are applicable whether or not government grants or contracts are involved and include the use of pain-killing drugs.

Dealers who buy, sell, or transport dogs or cats for research purposes must be licensed by the Secretary. Wholesale pet dealers and exhibitors such as in zoos and circuses are included. (Exception deals with private individual breeding and raising of dogs and cats on own premises.)

Animal research conducted in foreign countries must comply with the regulations and standards of the host country.

Information concerning human procedures used in the experiments and handling of animals should be released prior to conducting the experiments.

RESEARCH INVOLVING HUMANS

Thorough scrutiny by instructional review groups and documentation are required by the Public Health Service in all research, training, and demonstration projects involving humans in which procedures are harmful to the personal welfare of the subject. In situations where harm is not involved, considerations are voluntary participation, confidentiality, and propriety in use of findings.

Considering all the environmental legislation approved, 1970 appears to have been the beginning of a strong governmental effort to regenerate a deteriorating earth. No matter whom or what provoked Congressmen to propose and pass environmental bills and amendments, their effort to establish environmental laws and appropriations is "clearing the air" in more than one way.

Ecology Lessons Available on Film

"Community of Living Things," a life science course emphasizing ecology in thirty-two 20 minute lessons, has been produced by the Hampton Roads Educational Television Association, Norfolk, Virginia. The course, designed for junior high school grades and advanced sixth graders, is divided into five modules: Exploring Our Environment, Exploring Different Environments, Dynamics of Living Things, Interrelationships, and Man and His Environment.

Over 150 species are shown in the thirty-two lessons. Students are provided field trips to remote regions and teachers are given inservice instruction via film.

Course objectives are:

(1) "To present an understanding of how and why an organism lives where it does, and to search for conditions that demand individual adaptations if it is to survive there."

(2) "To show how living things are interdependent and how man has upset the environment with economic expansion and resultant pollution."

(3) "To describe the energy flow through a habitat and the characteristics of the living things found there."

(4) "To develop proper scientific processes for solving problems, and to emphasize observation in science and daily life."

Larry Crum is "Community of Living Things" television teacher and teacher's guide author. Since there is no textbook that follows the curriculum format, the teacher's guide is considered essential. A description of each lesson with behavioral objectives, a new words section, preparatory suggestions, further suggested activities, and a resource section of books, films, filmstrips, and related references for students are included in the guide.

Explanations of modules and lessons included follow:

Exploring Our Environment—reviews the techniques used to investigate the environment, such as observing, gathering, recording, and organizing data. Living and nonliving forms are compared.

1. "Techniques for Exploration"
2. "Life and Nonlife"

Exploring Different Environments—introduces various organisms that can adapt to fresh-water, marine, and land habitats.

3. "Ecology of a Lake: Its Microorganisms"
4. "Ecology of a Lake: In and Out of Water"
5. "Ocean Bottoms"
6. "Salt Marsh Ecology"
7. "Marshy Terrain"
8. "Bogs: Carnivorous Plants"
9. "Life Within the Topsoil"
10. "Desert Terrain"
11. "Community Changes"

Dynamics of Living Things—deals with processes of living organisms: photosynthesis, decomposition, and reproduction.

12. "Leaves and Photosynthesis"
13. "Food Getting"
14. "Activity of Life"
15. "Inactivity of Life"
16. "Decomposers: Mushrooms"
17. "Types of Cells"
18. "Transportation in Living Things"
19. "Growth and Life Span"
20. "Sensitivity"
21. "Reproduction: Asexual"
22. "Reproduction: Sexual"

Interrelationships—is concerned with the types of interrelationships among living things: parasitism, commensalism, mutualism, and the predator-prey relationship.

23. "Internal Parasites: Worms"
24. "Saprophytes and Scavengers"
25. "Colonial Organisms"
26. "Eater and Eaten"

Man and His Environment—focuses on the harmful effects of pollution, misuse of natural resources, and over-population. Man's efforts to conserve land, air, water, and wildlife are shown.

27. "Water Pollution"
28. "Air Pollution"
29. "Land Pollution: Garbage"
30. "Noise Pollution"
31. "Use and Replacement of Trees"
32. "Endangered Species"

Preview materials consist of Lesson 8, "Bogs: Carnivorous Plants" in the module Exploring Different Environments and Lesson 29, "Land Pollution: Garbage" in the module Man and His Environment. Preview lessons are available on 16mm film and on Ampex 1" and quadruplex video tape. Materials are available upon request at no charge to those interested in the in-school use of this course. A handling charge of $7.50 per lesson is assessed when a user requests lessons other than or in addition to the standard preview lessons. These lessons are available only in video tape.

For further information on material rental or preview requests, write:

Field Services
National Instructional Television
Box A
Bloomington, Indiana 47401
Phone: (812) 339-2203

NIT Eastern Office
Suite 217
1346 Connecticut Avenue, N.W.
Washington, D.C. 20036
Phone: (202) 332-9262

NIT Midwestern Office
910 Elm Grove Road
Elm Grove, Wisconsin 53122
Phone: (414) 786-9230

NIT Western Office
Suite 201
113 El Camino Real
Millbrae, California 94030
Phone: (415) 697-6441.

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SMAC

ERIC

Center Comments

The **ERIC/SMAC** Environmental Education staff is presently working on the evaluation phase of the EE program.

Evaluation conferences, in which evaluation teams gather to review environmental education programs, instructional materials, and instructional resources, are being held at the **ERIC/SMAC** office in Columbus, Ohio. Teams are critically examining over 900 environmental education-related documents and other relevant materials in order to establish and continue the flow of *quality* EE materials to the nation's schools. Environmental specialists, science educators, and social science educators meet to assess the standard of resources currently available and to establish criteria for identification of exemplary programs and materials.

The **ERIC/SMAC** staff screens all acquisitioned EE documents. Consequently, the teams evaluate only the select EE materials.

Each of the five teams consists of three or four consultants. After documents are assigned to each team, each consultant reviews the documents. After all consultants on a team have reviewed a document, the team prepares a team summary sheet. A document evaluation report is filed by each team member for each document. The report includes the team summary and the individual consultant ratings.

Documents are evaluated by two teams to provide evaluative data from persons with varying backgrounds. These data will be reviewed by staff personnel and consultants to provide a final report on each document.

Documents reviewed touch all facets of the environment and ecology: air, water, land, outdoor education, conservation, population, family planning, pesticides, nuclear energy, noise, plants, wildlife, and environmental management.

Types of materials inspected include: research reports, speeches, teacher guides, program outlines, textbooks, bibliographies, conference proceedings, outdoor education projects, and other pertinent teaching aids.

Goal of the evaluation phase is to produce a directory of environmental education programs and materials. This final report on all documents will include descriptive information regarding the program and evaluation data regarding the use of the materials with students (when available).

Dr. Robert E. Roth, Coordinator for Environmental Education at **ERIC/SMAC**, announces the following evaluation team participants and consultants:

(1) Dr. Edward Ambry (consultant), Director of the New Jersey State Council for Environmental Education;

(2) Dr. James Breen (evaluator), Professor at George Washington University, Washington, D.C.;

(3) Dr. Wilson Clark (evaluator), Professor at Eastern Montana College;

(4) Mr. Peter Cohan (evaluator), Executive Director of the Cooperative Science Education Center, Inc., Tennessee;

(5) Dr. Bette Del Giorno (evaluator), Director of the Science Department of Fairfield Public Schools, Connecticut;

(6) Mrs. Ethel Hackney (evaluator), Educational Specialist of the Science Department of the Public School District of Columbia, Washington, D.C.;

(7) Dr. William Hammerman (evaluator), Professor in the School of Education at San Francisco State College, California;

(8) Dr. Delmar Janke (evaluator), Assistant Professor, Department of Educational Curriculum and Instruction at Texas Agricultural and Mechanical University;

(9) Mr. Walter Jeske (evaluator), Chief of Education and Publications for the Soil Conservation Service, Washington, D.C.;

(10) Dr. Irving Morrissett (consultant), Director of the Social Science Education Consortium, Colorado;

(11) Mrs. Charline McDonald (evaluator,) environmental consultant (specifically in the northwest U.S. area), resident of Portland, Oregon;

(12) Mr. Ernest McDonald (evaluator), associated with the U.S. Forest Service, Division of Information and Education, Oregon.

(13) Mr. Richard Myshak (evaluator), Director of the Minnesota Environmental Sciences Foundation, Inc.;

(14) Mr. Charles Roth (evaluator), from the Massachusetts Audubon Society;

(15) Dr. Dennis Vinton (evaluator), associated with the Project Man's Environment of the National Education Association Center, Washington, D.C.;

(16) Dr. Eugene Vivian (evaluator), Director of the Conservation and Environmental Studies Center, New Jersey;

(17) Dr. Paul Weigert (evaluator), Dean of Outdoor Laboratories at the Southern Illinois University;

(18) Mr. William Harding (consultant), Teacher associated with the New Jersey State Council for Environmental Education;

(19) Mrs. Beverly Lee (environmental education **SMAC** staff), Research Associate at **ERIC/SMAC**, Ohio;

(20) Mr. Arthur Lucas (environmental education **SMAC** staff), Research Associate at **ERIC/SMAC**;

Cassandra Balthaser
Editor

SE 017 937

Geography Courses Available for 1970-71

A six-unit course, **Geography in an Urban Age**, has been created by the High School Geography Project of the Association of American Geographers and is available from The Macmillan Company offices, which are listed at the end of this article.

Each unit contains teacher materials: teacher's guide, transparency packet, maps, Modulex map boards, activity sets, data and statistical sheets and sometimes stereoviewers. Materials are allocated for a class of 30.

Student materials consist of a student resources book and student manual for each student.

The six units are as follows:

Unit 1, GEOGRAPHY OF CITIES

Students construct their own model city on a Modulex board, using colored Lego blocks representing different types of land uses.

Pupils learn about factors influencing the location, structure, and growth of cities in other activities within the unit, which requires from five to seven weeks. In the case of New Orleans, students work with aerial photographs and topographic maps to analyze the land use pattern of the city. Ethnic and other spatial patterns are explored in the city of Chicago.

Unit activities are: "City Location and Growth," "New Orleans," "City Shape and Structure," "Portsville," "Sizes and Spacing of Cities," and "Cities with Special Functions." Seven related optional activities are also included.

Teacher materials cost $240.00 and student materials, $2.99 per student.

Unit 2, MANUFACTURING AND AGRICULTURE

Pupils decide where to locate a metal fabricating company (Metfab) in the United States and select crops to be grown in western Kansas.

This unit, which takes six to eight weeks of teaching time, provides interviews with farmers from different parts of the world to compare agriculture.

The problem of locating a factory in the U.S.S.R. is included as an optional activity.

Unit activities are: "Geographic Patterns of Manufacturing," "The Importance of Manufacturing," "Location of the Metfab Company," "Graphic Examples of Industrial Location," "Hunger," "The Agricultural Realm," "Interviews with Farmers," "The Game of Farming," and "Enough Food for the World?" Two related optional activities are included.

Teacher materials cost $52.80 and student materials, $1.53 per student.

Unit 3, CULTURAL GEOGRAPHY

Slides and maps are used to explain the different cultures around the world. Students find that different parts of the world are becoming more similar, after viewing a filmstrip which contrasts traditional architecture and modern business districts in cities of the world. The unit requires three to four weeks.

Unit activities are: "Different Ideas about Cattle," "A Lesson from Sports," "Expansion of Islam," "Canada: A Regional Question," and "Culture Change: A Trend Toward Uniformity." One optional related activity is an additional part of the unit.

Teacher materials cost $15.00 and student materials, $0.95 per student.

Unit 4, POLITICAL GEOGRAPHY

Role-playing activities in this unit include: students as legislators of a hypothetical state facing the problem of distributing limited government funds among sections with different needs and interests, redistricting a state to assure equal voting representation, deciding boundaries for a new high school district, and analyzing problems involved in a metropolitan government. Four or five weeks are needed.

Unit activities are: "Section," "One Man, One Vote," "School Districts for Millersburg," "London," and "Point Roberts."

Teacher materials cost $31.50 and student materials, $0.65 per student.

Unit 5, HABITAT AND RESOURCES

The interaction of man with his environment is emphasized in this unit. One activity indicates the influence of geological characteristics on the transportation routes, farming, and settlements of areas. Another, utilizes New York City by analyzing the problems of pollution and waste. Requires five to seven weeks to complete.

Unit activities are: "Habitat and Man," "Two Rivers," "Watchung," "Rutile and the Beach," "Flood Hazards," "Water Balance," and "Waste Management."

Teacher materials cost $39.75 and student materials, $1.44 per student.

Unit 6, JAPAN

The major portion of this unit provides for student investigation of Japan's growth during the past hundred years using data presented in graphic, tabular, and map form. Pictures are used to compare Japan with North America. This is a three-week unit.

Unit activities are: "Introduction to Japan," "Traditional Japan," "Japan Today," and "The Modernization of Japan."

Teacher materials cost $10.50 and student materials, $1.20 per student.

UNUSED ACTIVITIES AVAILABLE

During the developmental stages of the **Geography in an Urban Age** course many activities were tested in schools and later rejected from inclusion in the units. These unused activities are of sufficient quality to be utilized in geography, economics, civics and other social studies classes.

The HSGP steering committee has recommended that the AAG Council invite the National Council for Geographic Education to joint-sponsor the publication of eight unused activities. Plans call for one volume in a format that would facilitate duplication of classroom sets.

The eight activities to be made available are: "Operation Bigger Beef" from Geography of Culture, "Case Studies: Mitaka and Niike" from Japan, "Political and Administrative Districts of the City" from Political Processes, "Scatter Diagrams of the Political Hierarchy and Its Territorial Framework" from Political Processes, "Designing a World Political Map" from Political Processes, "World Population" from Introduction, "Population of Canada" from Introduction, and "The Location of the Massachusetts State Medical School (or its Local Alternative)" from Political Processes.

For further information regarding availability and cost, write:

Association of American Geographers
1146 Sixteenth Street, N.W.
Washington, D.C. 20036.

For additional information and sample materials from the established units, write The Macmillan Company office nearest you:

The Macmillan Company
255 Ottley Drive, N.E.
Atlanta, Georgia 30324

The Macmillan Company
Elm at Houston
Dallas, Texas 75202

The Macmillan Company
539 Turtle Creek South Drive
Indianapolis, Indiana 46227

The Macmillan Company
Front and Brown Streets
Riverside, New Jersey 08075

The Macmillan Company
23 Orinda Way
Orinda, California 94563

The Macmillan Company
School Division
866 Third Avenue
New York, New York 10022.

Trees and Environment Series Evolves

The American Forest Institute is developing a series on Trees and Environment.

Recently, the Institute released a tape and transcript on "The Care and Propagation of Redwoods." Eugene Hofsted, timberland manager for the Arcata Redwood Company, discusses the features that make the redwood an unusual tree and describes its characteristics and qualities of regeneration. Miss Phyllis Rock, Education Director of the American Forest Institute, is moderator.

For further information on this series, write:

American Forest Institute
1835 K. Street, N.W.
Washington, D.C. 20006.

Syllabus Outlines Oceanography Degree Program

Southern Maine Vocational Technical Institute (SMVTI) in South Portland, Maine has established an Applied Marine Biology and Oceanography program, funded by the Sea Grant Program of the National Science Foundation. In connection with this program, a **Syllabus for an Associate Degree Program in Applied Marine Biology and Oceanography** has been prepared by Tapan Banerjee.

The 120-page booklet covers such subjects as Mathematics, Biology, Invertebrate Zoology, Field Biology (Ecology), Chemical Oceanography, Sociology, Microbiology, Planktology, and Fishery Science. Appendices include sample laboratory experiments, sources of audiovisual materials, sources of scientific and technical publications, list of faculty members at SMVTI, bibliography, and photographs of laboratory and field activities.

SMVTI's location (North Atlantic Ocean borders the eastern boundary of campus) encourages a teaching program in marine science.

The 1970 booklet is available from:

Southern Maine Vocational Technical Institute
Fort Road
South Portland, Maine 04106.

ERIC/SMAC and ERIC/ChESS Develop EE Reports with New Grant

The ERIC Information Analysis Center for Science and Mathematics Education (SMAC), cooperating with the ERIC Clearinghouse for Social Studies/Social Science Education (ChESS), has received a U.S. Office of Education grant for the project "Review of Environmental Education for Targeted Audiences."

Dr. Stanley L. Helgeson, Associate Director of ERIC/SMAC, is the principal investigator and overall coordinator for the total project. Dr. Helgeson will co-direct the project with Dr. Nicholas Helburn, Director of ERIC/ChESS.

The three staff associates are Robert E. Roth of The Ohio State University, Larry Singell of the University of Colorado, and Karen Wiley of the Social Science Education Consortium, Inc.

Purpose of the project is to produce four interpretive documents which review and analyze the latest research, curriculum materials, and instructional programs in environmental education to meet the needs of the following target audiences: (1) elementary teachers, (2) secondary teachers, (3) teachers of urban and disadvantaged, and (4) administrators.

The project staff, with the aid of an advisory panel and expert consultants, will review the survey of documents currently being performed by ERIC/SMAC, determine the kinds of information needed by the target groups, select programs and educational packages which appear promising, develop and apply systematic analysis criteria to the packages, compare strengths and weaknesses of alternative programs, appraise the current state of environmental education in terms of existing gaps and promising developments, and prepare and reproduce reports on the findings suitable for the target groups. These reports will be suitable for conversion by Office of Education personnel to PREP Kits.

Dr. Helgeson, of ERIC/SMAC located in Columbus, Ohio, and Dr. Helburn, of ERIC/ChESS in Boulder, Colorado, have developed six stages at which the project shall progress: (1) Planning and Preparation, (2) Development of Systematic Sets of Analytical Criteria, (3) Detailed Analysis of Materials and Programs, (4) Feedback on Draft Analyses and Other Aspects of the Project, (5) Revision and Synthesis, and (6) Preparation of Final Technical Report.

The four technical reports produced will be submitted to the Office of Education for possible conversion to PREP Kits, which the Office could then disseminate to the target groups through the country for use in evaluating and implementing materials and programs in environmental education.

This project strives to alleviate the following deficiencies typical to so many movements attempting to develop adequate environmental education programs and materials: fragmented development, unevenness of quality, and underdeveloped dissemination methods. The co-directors hope to solve the inadequacy of present educational programs in this area by reviewing and recommending quality environmental education programs to target groups.

Win or Lose . . . You Learn

Students Learn Through Pollution Games

After toying with an unusual commercially educational idea—Urban Systems, Inc. (located in Cambridge, Massachusetts) has literally "made a game" of pollution problems.

In fact this company has created more than one game to cover the nation's more than one pollution problem.

The three popular learn-while-you-play games are: "DIRTY WATER," the water pollution game; "ECOLOGY," the game of man and nature; and "SMOG," the air pollution game.

Urban Systems, Inc. has also produced a five-unit ecology kit series, containing the following kits: "Why Are Leaves Green?," "Life in the Water," "Predator-Prey," "What Moves Life," and "Life from Death."

Purposes of the games are explained below.

DIRTY WATER

"The purpose of the game DIRTY WATER is to acquaint the players with some of the complexities with which an administrator must deal in controlling water pollution to keep local bodies of water in a normal state of ecological balance. While the major sources of water pollution are often the town's industries, players discover that it is neither wise nor possible to indiscriminately restrict industrial activities. Instead, they learn how to effectively make use of abatement—water pollution control—strategies. The establishment and enforcement of water pollution control measures are costly and so the players also learn about the financial problems accompanying water pollution control. Another factor with which the players must deal is the problem of over-population of certain aquatic species. While it is beneficial to keep lakes and rivers stocked with various organisms, an overabundance of one kind upsets the natural balance of species. Finally, the players discover that pollution does not respect political boundaries, and learn to contend with water pollution originating in a jurisdiction upstream along a common river which the local official has no power to control."

ECOLOGY

"Players try to achieve a balance between man's activities and the natural environment, while advancing through the four Ages of Development: Hunting, Agricultural, Industrial, and Environmental. As their population grows, players compete to occupy Land Areas, collect money and inventions, and try to maintain their supply of Ecology Points, which represent environmental quality."

SMOG

"The purpose of SMOG is to acquaint the players with some of the complexities with which a local administrator must deal in controlling the quality of the air over his town. While the most important sources of air pollution are automobiles and the smoke emitted by industries which burn sulfur-containing fuels, the players soon discover that it is neither wise nor possible to outlaw all gasoline-engine automobiles and to indiscriminately restrict industry. Instead, they learn how to effectively make use of suitable abatement—air pollution control—techniques, and to plan for transportation and solid waste management systems which efficiently reduce air pollution levels. In addition, the establishment and enforcement of air pollution control measures is costly and requires public support. The players learn about the financial problems accompanying air pollution control, and the necessity of pleasing the voters. Finally, the players discover that pollution does not respect political boundaries, and learn to contend with air pollution originating in a neighboring jurisdiction which the local officials have no power to control."

ECOLOGY KIT SERIES

Each kit contains an educational booklet and experimental supplies.

Why Are Leaves Green?

This kit discusses "plants and their green color in relation to light, photosynthesis, plant survival, and related ecological issues. Experiments include the effect of light on green plants and non-green plants, the separation of chlorophyll and other pigments by paper chromatography."

Life in the Water

This set explains the "essential food sources for aquatic life: tiny plant and animal plankton, their nutrition and survival. It is designed to investigate nearby bodies of water: ponds, lakes, streams, and oceans. Equipment includes a Secchi disk for testing clarity of water and a plankton net to gather living samples. If a microscope is available, the tiny plants and animals discovered in the water can be compared to pictures in the booklet."

Predator-Prey

This package describes "survival, food chains, food webs, and ecological balance in the form of a simulation game, in which small circles represent prey (such as rabbits or squirrels) and large circles represent predators (such as lynx or wolves). Each person tries to be the best predator possible. He can then trace the changes in the predator and prey populations under different circumstances, illustrating competition and natural selection."

What Moves Life

"Relationships of living organisms to physical factors in their environment is explained in this kit. Experiments include testing the effect of light on plants and animals, the effect of gravity on roots and stems, the effect of temperature on the growth of plants and animals, the effect of moisture on the growth of plants, and the effect of physical objects on the growth of plants."

Life from Death

This set discusses the "contribution of wastes to the survival of life on earth in terms of recycling of nutrients throughout the food web. Experiments involve testing the gases animals and plants give off and testing soil components for acidity and retention of water and dissolved nutrients. The problems of pollution from human wastes are discussed and some solutions for waste disposal are offered."

For further information and prices, write:

Urban Systems, Inc.
1033 Massachusetts Avenue
Cambridge, Massachusetts 02138.

Audubon Aids Available

Several Audubon natural science materials, including: Audubon study programs, **Audubon Nature Bulletins,** Audubon nature charts, Audubon slides, flash cards, Audubon bird leaflets, conservation fact sheets, Audubon adult workshops, **Audubon** magazines, and other assorted aids, are available from:

Educational Services
National Audubon Society
1130 Fifth Avenue
New York, New York 10028.

A 20-page booklet, **Audubon Aids in Natural Science,** contains descriptions of various aids, prices, and ordering information. (Available from the above address.)

Study programs may be purchased separately ($2.25 each) or as a set ($10.00) of five: (1) Audubon Ecology Study Program, (2) Audubon Bird Study Program, (3) Audubon Tree Study Program, (4) Audubon Plant Study Program, and (5) Audubon Mammal Study Program. Included in each packet are a study booklet, additional study booklets, additional leader's guides, and additional wall charts. Study booklets stress the relationships between sun, air, earth, water, plants, and animals (including man). Leader's guides contain suggested lesson plan and evaluative material, including indoor and outdoor projects, crafts, and games, and a Unit Outline. Wall charts are in color and at least 24" by 40" in size. Program packets are designed for the intermediate to junior high level.

In addition to study programs, **Audubon Nature Bulletins** may be purchased by individual subject sets: Good Teaching Aids ($3.60), Animals and How They Live ($3.35), Insects and Spiders ($2.35), Plant Identification ($3.10), Conservation ($1.85), Ecology ($2.35), and Flannel Board ($1.60). The complete set, containing 70 **Bulletins,** costs $12.00.

Bulletins are designed for the junior high to adult level. Drawings and photographs are included in the guides.

Good Teaching Aids—explain how to set up projects and what you should know about them. Topics covered include: Rock Stories, Study the Stars, Plant Propagation, How to Lead a Field Trip, Forecasting the Weather, and Schoolyard Laboratory.

Animals and How They Live—describes and illustrates habitats and life styles of terrestrial and marine animals. Subjects covered include: The Creature in the Shell; Animals that Hibernate; Track Stories in Mud, Sand and Snow; Mysteries of Bird Migration; and Bird Nests.

Insects and Spiders—presents life cycles of insects and spiders and reveals their relationship to man and the rest of nature. Titles include: Life of the Honey Bee, Mosquitoes and Other Flies, Ants, and How Insects Benefit Man.

Plant Identification—illustrates several species in the plant kingdom and describes the life cycle of flowers, trees, and ferns. Topics presented include: Poison Ivy, Spring Wild Flowers, Prairie Wild Flowers, and Curious World of Plant Galls.

Conservation—provides data on air and water pollution and the preservation of natural areas of wildlife. Offers constructive approaches to conservation of the natural resources. Titles include: Plants as Makers of Soil, Water Pollution, Conservation: To Keep This Earth Habitable, and Conservation Displays.

Ecology—describes the interrelationship of plants and animals with their environment. Subjects covered include: Desert, Life in a Pond, Camouflage, and World of the Seashore.

Flannel Board—provides direction on how to make a flannel board so that a narrator can illustrate a story with cutouts. Subjects include: How a Thunderstorm Grows; On the Farm; Our Brothers, the Trees; and The Balance of Nature.

Student memberships to **Audubon** magazine are available for $6.00 per year. Other special prices may be obtained by writing the National Audubon Society at the previously mentioned address.

Marine Advisory Program Produces Pamphlets

Several educational pamphlets on indoor field trips and marine science are available from:

Mr. Donald E. Giles
Marine Science Education Specialist
Marine Science Center
Oregon State University
Marine Science Drive
Newport, Oregon 97365.

Titles of the pamphlets include: "Landslides of Oregon: North Coast," "Phytoplankton grass of the sea," "Constructing and Maintaining a Cooled Salt Water Aquarium," "Today's youth in tomorrow's sea," "Crisis in Oregon Estuaries," "Oregon's Ocean Wealth," "Guide—Oregon's Rocky Intertidal Field Trip Sites," "Indoor Field Trips at the OSU Marine Science Center," and "Guidelines for Rocky Intertidal Field Trips."

Also available is a sheet to be posted at Oregon beaches which explains the Oregon law on protection to all intertidal animal forms.

These materials were published by the O.S.U. Marine Advisory Program in connection with the National Science Foundation's Sea Grant.

Environment of Man Series Films and Records Available

The **Environment of Man** series, consisting of two sets of five color/sound filmstrips and three records (33⅓ rpm), is available from:

AVI Associates, Inc.
825 Third Avenue
New York, New York 10022.

The series, produced in cooperation with UPITN (the television news subsidiary of United Press International) and written by David Tapper, costs $59.00 per set. **Environment of Man,** narrated by Barry Morse and coordinated by Seymour Kopilow, Chairman of the Science Department, Farmingdale High School, New York, was premiered at the Smithsonian Institute during Earth Week, April 1970.

The series for science and social studies use in junior and senior high schools "examines the balance of nature as affected by man's growing technology."

Set I, Ecology and Environment contains the following films: Is There Life on Earth?, Ocean of Air, Water—Clear and Otherwise, Of Food and Land, and Energy Applied.

Set II, Man and Nature consists of such films as: Population—The Numbers Game, Concrete Habitat, The Busy-Body, Unthinking Man, and Man: The Builder.

Filmstrips may be examined for ten days, then remittance or return of filmstrips is required.

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Books, Pamphlets, Films, and Tapes Provide Information on Environment-Related Careers

Environmental education and concern has come to the forefront in the past decade owing to the buildup and ensuing impact of various environmental problems: depletion of natural resources, improper or inefficient resource management, pollution, the population explosion, socio-cultural and socio-economic problems in government, economics, culture, and the urban and rural environments.

But environmental problems cannot be solved hastily. In the years ahead, persons with training in environmental systems will be needed and will be able to contribute to an enhancement of the quality of human life. Opportunities for careers in environment-related professions—natural resource planning, conservation and environmental education, urban and rural planning, environmental health, forestry, wildlife management, nature interpretation, industrial environmental management, landscape architecture, and an array of new professions in environmental improvement—are rapidly developing.

To provide guidance for individuals interested in environmental careers, the ERIC Information Analysis Center for Science and Mathematics Education, Columbus, Ohio, has developed a selected list of books, pamphlets, films, filmstrips, and audio tapes dealing with career opportunities in numerous areas of environmental concern.

The listing has been compiled from many sources at this ERIC Center. Primary sources include publications of the Soil Conservation Service, U.S. Department of Agriculture and the Conservation and Environmental Studies Center, Inc., Browns Mills, New Jersey.

Many government agencies, at the national, state, and local level, provide information on career opportunities in areas of environmental involvement. Private, commercial, and industrial organizations also issue printed materials describing educational or training requirements and employment opportunities. Requests for information should be forwarded directly to the individual organizations or agencies.

Beverly M. Lee
ERIC/SMAC Environmental
Education Research Associate

Publications — Films — Tapes

GENERAL

Encyclopedia of Careers and Vocational Guidance. William E. Hopke, et al. 2 vols. Vol. 1: *Planning Your Career*. Vol. 2: *Careers and Occupations*. Doubleday & Co., Garden City, N.Y. 11530.

"Occupational Outlook Handbook." Bureau of Labor Statistics. U.S. Department of Labor, Washington, D.C. 20210.

Unusual Careers. Martha Munzer. Alfred A. Knopf, Inc., N.Y. 10022. 142 pp.

AGRICULTURE

"Careers in Agriculture." 16mm movie. B&W/Color. Sound. 14 min. Coronet Films, Chicago, Ill. 60601.

"Careers in Agriculture." Audio tape reel. 25 min. Vocational Agricultural Service, University of Illinois, Urbana, Ill. 61801.

"Careers in Animal Industry." Sound filmstrip. Color. 47 frames. Vocational Education Productions, California State Polytechnic College, San Luis Obispo, Calif. 93401.

"Careers in Farm Services." Sound filmstrip. Color. 52 frames. Vocational Education Productions, California State Polytechnic College, San Luis Obispo, Calif. 93401.

"Careers in Ornamental Horticulture." Sound filmstrip. Color. 50 frames. Vocational Education Productions, California State Polytechnic College, San Luis Obispo, Calif. 93401.

"Choosing a Career in Agronomy." Audio tape reel. 25 min. Vocational Agricultural Service, University of Illinois, Urbana, Ill. 61801.

"Choosing a Career in Ornamental Horticulture." Audio tape reel. 25 min. Vocational Agricultural Service, University of Illinois, Urbana, Ill. 61801.

"Is Farming for Me?" Filmstrip. B&W. Visual Education Consultants, Inc. Madison, Wisc. 53701.

Careers in Agribusiness and Industry. Interstate Printers and Publishers, Inc., Danville, Ill. 61832. 292 pp.

BIOLOGY — BOTANY

"Biochemist." Career Brief B 101. Careers, Box 135, Largo, Fla. 33540.

"Biochemist." Occupational Brief 132. Chronicle Guidance Publications, Moravia, N.Y. 13118.

"Biologist." Occupational Brief 344. Chronicle Guidance Publications, Moravia, N.Y. 13118.

"Careers in Biology." American Institute of Biological Sciences, Washington, D.C. 20016.

"Careers in Botany." Botanical Society of America, Department of Botany, University of Texas, Austin, Texas. 78710.

Careers in the Biological Sciences. William W. Fox. Henry A. Walck, Inc., N.Y. 10001. 114 pp.

"Career Opportunities in Biology." Russell B. Stevens. National Academy of Sciences, Washington, D.C. 20418.

"Source List for Careers in the Biological Sciences." American Institute of Biological Sciences, Washington, D.C. 20016.

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CONSERVATION

Careers in Conservation: Opportunities in Natural Resources. Henry Clepper. Ronald Press, N.Y. 10001. 141 pp.
(Note: This is the best single source of information on major career options, schools, and colleges.)

"Careers in Conservation" (reprint). *The Conservationist.* April-May, 1963. New York Department of Conservation, Albany, N.Y. 12226.

Careers in Conservation. NASCO, Fort Atkinson, Wisc. 53538. 112 pp.

"Careers in Conservation." Soil Conservation Society of America, Ankeny, Iowa. 50021.

Careers in Natural Resource Conservation. Frederick W. Herbert. Henry A. Walck, Inc., N.Y. 10001. 110 pp.

"Careers in Natural Resources Management." Sound filmstrip. Color. 53 frames. Vocational Education Productions, California State Polytechnic College, San Luis Obispo, Calif. 93401.

"Careers in Resource Management." Branch of Employment and Training. Bureau of Land Management. U.S. Department of the Interior, Washington, D.C. 20240.

"Careers for Women in Conservation." Leaflet No. 50. U.S. Department of Labor, Women's Bureau, Washington, D.C. 20240.

Careers Outdoors. James Joseph. Thos. Nelson & Sons, N.Y. 10001. 345 pp.

"Conservation Directory." National Wildlife Federation, Washington, D.C. 20036.
(Contains list of international, federal, regional, and state conservation agencies and organizations and officials and a list of colleges offering conservation training.)

Conservationists and What They Do. William C. Harrison. Watts, N.Y. 170 pp.

Find a Career in Conservation. Jean Smith. G.P. Putnam's Sons, N.Y. 10001. 160 pp.

Natural Resource Conservation. Henry A. Walck, N.Y. 10003. 128 pp.

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"Outdoor Career Guide." Charles Manson. *Field and Stream.* April, 1967.
(Contains essay on the variety of conservation openings and an excellent chart on job categories, education required, and salaries.)

Scientists Who Work Outdoors. Lynn and Gary Poole. Dodd, Mead & Co., N.Y. 10015. 178 pp.

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EDUCATION — CONSERVATION, ENVIRONMENTAL, OUTDOOR

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Preparation of the Interpretive Naturalist. The Association of Interpretive Naturalists, Inc., Columbus, Ohio. 43205. 6 pp.

"Start Your New Life in the Great Outdoors Now . . ." National School of Conservation, Washington, D.C. 20036. 24 pp.

ENGINEERING

"Civil Engineer" and "Mechanical Engineer." Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250. 2 pp. each.

"Engineering Geology." Geological Survey, U.S. Department of the Interior, Washington, D.C. 16 pp.

"Engineers in the Forest Service." Misc. Publication No. 1089. U.S. Government Printing Office, Washington, D.C. 20402.

"Landscape Architect." Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250. 2pp.

"Science and Engineering Careers in Government." U.S. Government Printing Office, Washington, D.C. 20402. 21 pp.

"Your Future As a Surveyor." Audio tape reel. Harcourt Brace and Jovanovich, N.Y. 10017.

FORESTRY

"A Job With the Forest Service." U.S. Government Printing Office, Washington, D.C. 20402.

"Ask Any Forester." Society of American Foresters, Washington, D.C. 20036.

"Careers in Forestry." U.S. Government Printing Office, Washington, D.C. 20402.

"Careers in Forestry for Women." West Virginia University, Morgantown, W. Va. 26506.

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"Career Packet." American Forest Products Industries, Washington, D.C. 20006.

"Challenge in Wood Research." Misc. Publication No. 1054. U.S. Department of Agriculture, Washington, D.C. 20250.

"Employment Outlook for Conservation Occupations: Foresters, Forestry Aides, Range Managers." Bulletin 1550-20. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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"Move Ahead—Research Careers in the Forest Service." Misc. Publication No. 1109. Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250.

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GEOLOGY

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"Careers in Mineral Industries." The Pennsylvania State University, College of Mineral Industries, University Park, Pa. 17203.

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"Geology—Science and Profession." American Geological Institute, Washington, D.C. 20006.

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"The Sphere of the Geological Scientists." Chalmer J. Roy. American Geological Institute, Washington, D.C. 20006.

HEALTH

"Health Careers." 16mm movie. B&W. 13 min. Connecticut State Department of Health, Public Health Education Section, Hartford, Conn. 06115.

Health Education As Your Career. National Education Association, Washington, D.C. 20036.

MARINE SCIENCES

"A Career in Oceanography." Sound filmstrip. Color. 70 frames. Macalaster Scientific Company, Nashua, N.H. 03060.

"Air-sea Interaction: A Career in Oceanography." Sound filmstrip. Color. 70 frames. Encyclopedia Britannica Educational Corporation, Chicago, Ill. 60611.

"Careers at Sea." Audio tape reel—4 reels. Imperial International Learning, Kankakee, Ill. 60901.

"Employment Opportunities in the Bureau of Sport Fisheries and Wildlife." National Wildlife Federation, Washington, D.C. 20036.

"Fisheries as a Profession." American Fisheries Society, Washington, D.C. 20005.

"Fisheries Science and Related Courses in North American Colleges and Universities." Sport Fishing Institute, Washington, D.C. 20005.

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"Training and Employment of Wildlife Biologists and Fisheries Biologists." *Journal of Wildlife Management,* Vol. 25, No. 2. April, 1961.

OUTDOOR RECREATION

"Career Packet." Bureau of Outdoor Recreation, U.S. Department of the Interior, Washington, D.C. 20240.

"Careers in the National Park Service." National Park Service, U.S. Department of the Interior, Washington, D.C. 20240.

"Careers in Outdoor Recreation." *The Conservationist.* New York Department of Conservation, Albany, N.Y. 12226.

"Careers in Recreation." 16mm movie. Color. 27 min. Athletic Institute, Chicago, Ill. 60654.

Guarding the Treasured Lands: The Story of the National Park Service. J. B. Lippincott, Philadelphia, Pa. 19105. 1965. 160 pp.

Recreation as Your Career. National Education Association, Washington, D.C. 20036.

"Working for the Bureau of Outdoor Recreation." Bureau of Outdoor Recreation, U.S. Department of the Interior, Washington, D.C. 20240.

RANGE MANAGEMENT

"Career Opportunities in Rangeland Management." American Society of Range Management, Denver, Colo. 80222.

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"Preparing for a Career in Range Management." American Society of Range Management, Denver, Colo. 80222.

"Range Conservationist." Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250.

SOIL AND WATER CONSERVATION

"Careers in Soil and Water Conservation." *The Conservationist.* New York Department of Conservation, Albany, N.Y. 12226.

"Careers in the Soil Conservation Service." Four booklets: "Students Start Your Career in SCS Before You Graduate" (MP No. 714); "An Engineering Career for You in the Soil Conservation Service" (MP No. 715); "A Soil Science Career for You in SCS" (MP No. 716); "Careers in Soil Conservation Service" (MP No. 717). U.S. Government Printing Office, Washington, D.C. 20402.

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"Wanted: Manpower to Provide Clean Water for America." Federal Water Pollution Control Administration, U.S. Department of the Interior, Washington, D.C. 20240.

"Water Pollution Control Operator." Division of Manpower Development and Training. Office of Education, U.S. Department of Health, Education and Welfare, Washington, D.C. 20202.

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WILDLIFE MANAGEMENT

"A Wildlife Conservation Career for You." S-176. The Wildlife Society, Washington, D.C. 20016.

"A Wildlife Management Career in the Forest Service." Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250. 2 pp.

"Careers for Women in Forestry—Wildlife Management Option." West Virginia University, Morgantown, W. Va. 26506.

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"Universities and Colleges with Wildlife Management and Conservation Curricula in North America." The Wildlife Society, Washington, D.C. 20006.
Wildlife Management and Conservation. James B. Trefethen. D.C. Heath & Co., Boston, Mass. 02116. 126 pp.
"Wildlife Specialist." Career Brief B-107. Careers, Box 135, Largo, Fla. 33540.

MISCELLANEOUS

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"Population Programs and Organizations." *Population Bulletin.* Vol. 25, No. 5. November, 1969. 43-47 pp.

Government Departments

U.S. Army Corps of Engineers
Personnel Office
Washington, D.C. 20314

U.S. Atomic Energy Commission
Personnel Office
Washington, D.C. 20545

U.S. Department of Agriculture
Personnel Office
Washington, D.C. 20250
- Agriculture Research Service
- Agricultural Stabilization and Conservation Service
- Forest Service
- Soil Conservation Service

U.S. Department of Commerce
Personnel Office
Washington, D.C. 20230
- Environmental Science Services Administration

U.S. Department of Health, Education and Welfare
Personnel Office
Washington, D.C. 20201
- Environmental Control Administration (Bureau of Solid Waste Management)
- Food and Drug Administration
- National Air Pollution Control Administration
- Public Health Service

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Personnel Office
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- Community Resources Development Administration
- Renewal Assistance Administration

U.S. Department of the Interior
Personnel Office
Washington, D.C. 20240
- Bureau of Land Management
- Bureau of Mines
- Bureau of Outdoor Recreation
- Bureau of Reclamation
- Federal Water Quality Administration
- Fish and Wildlife Service
- Geological Survey
- National Park Service
- Office of Saline Water

U.S. Department of Transportation
Personnel Office
Washington, D.C. 20590
- Bureau of Public Roads
- Urban Mass Transportation Administration

U.S. Federal Power Commission
Personnel Office
Washington, D.C. 20426

U.S. National Science Foundation
Personnel Office
Washington, D.C. 20550

Organizations

Air Pollution Control Association
4400 Fifth Avenue
Pittsburgh, Pennsylvania 15213

American Cancer Society
219 East 42nd Street
New York, New York 10017

American Chemical Society
1155 16th Street, N.W.
Washington, D.C. 20036

American Conservation Association
30 Rockefeller Plaza
New York, New York 10020

American Fisheries Society
1040 Washington Building
Washington, D.C. 20005

American Forest Products Industries, Inc.
1835 K Street, N.W.
Washington, D.C. 20006

American Forestry Association
919 17th Street, N.W.
Washington, D.C. 20006

American Gas Association
605 Third Avenue
New York, New York 10016

American Geological Institute
2201 M Street, N.W.
Washington, D.C. 20037

American Institute of Biological Sciences
3900 Wisconsin Avenue, N.W.
Washington, D.C. 20016

American Institute of Professional Geologists
P.O. Box 836
Golden, Colorado 80402

American Iron and Steel Institute
150 East 42nd Street
New York, New York 10017

American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

American Paper Institute
260 Madison Avenue
New York, New York 10016

American Petroleum Institute
1271 Avenue of the Americas
New York, New York 10020

American Public Power Association
2600 Virginia Avenue, N.W.
Washington, D.C. 20037

American Society for Oceanography
854 Main Building
Houston, Texas 77002

American Society of Agricultural Engineers
420 Main Street
P.O. Box 229
St. Joseph, Michigan 49085

American Society of Range Management
2120 South Birch Street
Denver, Colorado 80222

Association of Interpretive Naturalists
1251 East Broad Street
Columbus, Ohio 43205

Botanical Society of America
Department of Botany
University of Texas
Austin, Texas 78710

Center for Mass Communication
Columbia University Press
440 West 110th Street
New York, New York 10025

Conservation and Environmental Science Center
Box 2230
R.D. #2
Browns Mills, New Jersey 08025

The Conservation Foundation
1717 Massachusetts Avenue, N.W.
Washington, D.C. 20036

Garden Club of America
598 Madison Avenue
New York, New York 10022

International Planned Parenthood Federation
51 East 42nd Street
New York, New York 10017

Izaak Walton League of America
1326 Waukegan Road
Glenview, Illinois 60025

National Aeronautics and Space Administration
Washington, D.C. 20546

National Audubon Society
1130 Fifth Avenue
New York, New York 10028

National Education Association
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

National Wildlife Federation
1412 Sixteenth Street, N.W.
Washington, D.C. 20036

The Nature Conservancy
1522 K Street, N.W.
Washington, D.C. 20005

Population Association of America
P.O. Box 14182
Benjamin Franklin Station
Washington, D.C. 20044

Population Council
245 Park Avenue
New York, New York 10017

Population Crisis Committee
1730 K Street, N.W.
Washington, D.C. 20006

Population Reference Bureau, Inc.
1755 Massachusetts Avenue, N.W.
Washington, D.C. 20036

Resources for the Future, Inc.
1755 Massachusetts Avenue, N.W.
Washington, D.C. 20036

Sierra Club
1050 Mills Tower
220 Bush Street
San Francisco, California 94104

Smithsonian Institute
Washington, D.C. 20560

Society of American Foresters
1010 Sixteenth Street, N.W.
Washington, D.C. 20036

Soil Conservation Society of America
7515 N.E. Ankeny Road
Ankeny, Iowa 50021

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National Conference Highlights Marine Recreation and Conservation

Aboard the Queen Mary at Long Beach, California and in the Pacific Terrace Convention, numerous conservation enthusiasts and oceanographic experts gathered recently for the national conference entitled "Ocean '71 Marine Recreation and Conservation." The American Society for Oceanography under the direction of the Society's Pacific Western Region sponsored the marine science, technology, and industry oriented conference.

During the March 11-14 conference, students, the general public, and oceanographic professionals were presented a program emphasizing recreational and leisure use of the sea incorporated with the need to maintain, protect, conserve, and sustain the ocean environment and the ocean potential and resources.

Leaders in science, industry, commerce, education, entertainment, government and the concerned public spoke on their products, services, concepts or causes concerned with marine recreation and conservation.

Jean Michel Cousteau, son of renowned oceanographer Jacques Yves Cousteau and president of the Living Sea Corporation, was chairman of the opening day event, Student Day, of which thousands of California high school and college students attended.

"The interest in ecology and protection of the marine environment is right at the top of the list of interests among our youth," Cousteau commented.

Student Day featured admission to the exhibition in the Pacific Terrace Arena and two panels, one consisting of adult professionals and the other of student leaders.

The adult panel was comprised of a leading educator, an industrialist, a conservation expert, a government figure, a scientist, a celebrity interested in conservation and a few concerned citizens.

The youth panel included representatives of student conservation organizations active on high school and college campuses, a student government leader, a student journalist and several graduate students.

Dr. Andreas B. Rechnitzer, the man who led the Trieste expedition to the deepest ocean floor, elaborated on "The Future of Youth in Marine Related Fields."

The "Man in the Sea," a slide presentation, was among the films shown to students.

Student Day was presented as a public service in keeping with the goals of the American Society for Oceanography, a national society dedicated to education in marine affairs, science, and technology and to public enlightenment in this field, according to conference/exhibition executive director I. Patricia Bridger.

NSF Supports Environment Training

National Science Foundation grants, amounting to $1,828,900, will provide for special science and mathematics training during this summer and the 1971-72 academic year in 126 science training projects for 4,500 high-ability high school students.

The oceanography and marine biology projects will involve 200 students at six institutions. Students will study these two popular subjects along the shores of the Atlantic and Pacific Oceans and on Lake Erie during the summer.

The variety of academic projects are conducted by the Foundation's Student Science Training Program (Pre-College).

Grants were awarded to colleges, universities, and research institutions in 40 states and the District of Columbia. One hundred-nineteen grants provide support for 1971 summer activities; seven awards support similar projects during the academic year.

Oceanography and marine biology projects will be conducted at the University of Rhode Island, Kingston; at Oregon State University, Corvallis; Humboldt State College, Arcata, and Scripps Institution of Oceanography at La Jolla, California; at the University of Hawaii, Honolulu; and at New York State University College, Fredonia. (Students at Fredonia will study Lake Erie.)

Archaeology and anthropology projects will be conducted at two Pennsylvania state colleges at Clarion and California; the Field Museum of Natural History in Chicago; the University of Delaware at Newark; Indiana University, Bloomington; and by the Oregon Museum of Science and Industry at Portland.

Selection of high school students is based on scholastic ability, scientific motivation, and the completion of specified high school courses in science and mathematics. Participants are selected from those now in the 11th grade.

Summer projects range from five to eleven weeks in length, and costs of instruction are normally covered by the Foundation grant. Each participant is expected to pay his own expenses for room, board, and travel. NSF provides limited funds to be used at the discretion of the project director to support needy students who would otherwise be unable to attend. Participants in academic year projects will commute to the host institution, usually on Saturday, for approximately 30 weeks.

Students interested in being candidates for training projects should apply directly to the institution for further information and application blanks, NOT to the Foundation.

A 26-page pamphlet, **Science Training Programs for High Ability Secondary School Students,** which explains the program and lists the addresses of participating institutions, is available from:

National Science Foundation
Central Processing Section
Office of Assistant Director for Administration
Washington, D.C. 20550.

SE017 937

Directory of Environmental Monitoring Available

A comprehensive directory of national and international environmental monitoring activities is available at $10.00 a copy from:

Smithsonian Institution Center
for Short-Lived Phenomena
60 Garden Street
Cambridge, Massachusetts 02138.

Included in the 292-page directory are 54 national and international monitoring system network maps. "The result of a Smithsonian world-wide survey, the directory contains basic information on the number, global distribution, and operational monitoring activities. It contains information on 33 major international environmental monitoring systems, both current and planned, and information on over 2,000 other national and regional monitoring programs operating in 142 countries, territories, and oceans throughout the world."

Two Environmental Books Available

Friends of the Earth (a non-profit membership organization devoted to restoring and preserving the environment) has published **The User's Guide to the Protection of the Environment** by Paul Swatek and **The Voter's Guide to Environmental Politics** by Garrett DeBell, Ed. These paperbacks are available from:

Ballantine Books, Inc., Department CS
36 West 20th Street
New York, New York 10003.

The **User's Guide**, priced at $1.25, centers on the theme "Every consumer decision you make has an environmental impact." The guide elaborates on decisions the consumer makes that will improve or deteriorate the environment: brand names, products, where to get those products which are ecologically safe.

The **Voter's Guide**, priced at $0.95, provides instructions on how to work within the governmental system for environmental purposes.

The **User's Guide** contains a bibliography and the **Voter's Guide** provides a list of organizations which have information and action on environmental problems.

Guide Explains Environmental Protection

A Curriculum Activities Guide to Water Pollution and Environmental Studies, prepared by 57 teachers and 68 students from public and private schools during the summers of 1969 and 1970 at Tilton School, Tilton, New Hampshire, is available to secondary schools.

The 520-page classroom guide to instruct teenagers in the knowledge and skills of environmental protection was co-sponsored by grants from the Federal Water Quality Administration (FWQA) and the Ford Foundation.

The guide is divided into four chapters which involve teacher-student action oriented activities in the laboratory, or in a watershed area near the school, or both.

Seven appendices, including sections on aquatic biology, water chemistry, and bacteriology, and a comprehensive bibliography and glossary are included.

In addition to the guide, the project developed a teacher training program to counsel and instruct other teachers in environmental study techniques.

The guide is "by far the most complete and accurate of the few environmental curricula in use," William D. Ruckelshaus, Administrator of the Environmental Protection Agency, reported.

Training Grants Branch of the FWQA is responsible for distribution of the guide.

Tape Explains "Clearcutting"

The American Forest Institute has released a tape entitled "When and Why Foresters Clearcut" as part of its Trees and Environment series.

Hardin R. Glascock, Jr., Executive Vice President of the Society of American Foresters, discusses the advantages and disadvantages of clearcutting. Miss Phyllis Rock, Education Director of the American Forest Institute, is moderator.

Tapes and transcripts are available from:

American Forest Institute
1835 K. Street, N.W.
Washington, D.C. 20006.

Pollution Enters Curriculum

The National Science Foundation (NSF) has granted $76,550 to Charles County Community College in La Plata, Maryland for piloting curriculum in the areas of resource technology.

Professor Belva L. Jensen, chairman of the College Department of Biology, is director of the interdisciplinary project.

The experimental curriculum will train technicians to examine the complex physical, chemical, and biological factors encountered in estuary environments. Students will study such courses as water chemistry, wastewater treatment, ecology, hydrology, fisheries, limnology, and data processing.

The college expects 25 students to enter the program this fall. With completion of the two-year program, students will be awarded an associate degree in estuarine resource technology and will be competent to perform advanced level sampling and analysis.

Although the grant was initially awarded for a one-year period, NSF intends to continue support of the project for two additional years, through the first graduating class. With completion of the three-year pilot project, the estuarine resource technology program at Charles County Community College will be completely self-sustaining.

Located near the Potomac River, this junior college is the first to receive a NSF award of this nature.

The college, which is surrounded by waterways on three sides, has an on-campus sewage treatment plant.

American Forest Institute Releases "Trees and Wildlife" Tape

The American Forest Institute has released a tape entitled "Trees and Wildlife" as part of its Trees and Environment series.

On the tape Thomas Kimball, Executive Director of the National Wildlife Federation, discusses the wildlife census in the United States, forest environment, and people versus wildlife. Miss Phyllis Rock, Education Director of the American Forest Institute, is moderator.

For further information on wildlife, write:

National Wildlife Federation
1412—16th Street, N.W.
Washington, D.C. 20036.

Tapes and transcripts are available from:

American Forest Institute
1835 K. Street, N.W.
Washington, D.C. 20006.

Sierra Club Publishes 1971 Wilderness Outings

Outings ranging from knapsack to burro trips are listed in the 35-page **Sierra Club Bulletin, January 1971, Volume 56—Number 1A** entitled "1971 Wilderness Outings."

Topics covered include: Knapsack Trips, Alaska and Hawaii, Base Camps, Back-Country Camp, Service Trips, Midwestern and Eastern Trips, Trip Reservations and Conditions, Trip for Wilderness Travel, River Trips, Spring Trips, Foreign Trips, Family Outings, Saddle-Light Trip, Sierra High Trip, High-Light Trips, and Sierra Burro Trips.

To order single copies at $0.50 each, write:

Sierra Club
1050 Mills Tower
San Francisco, California 94104.

Publication Lists Educational Information Resources

Over 200 educational information resource centers are announced in the **Directory of Educational Information Resources** compiled by Judy Wanger of the System Development Corporation, Falls Church, Virginia. The 189-page hardback book is available from:

CCM Information Corporation
909 Third Avenue
New York, New York 10022.

This 1971 directory is a revised and updated edition of the **Directory of Educational Information Centers** (U.S. Government Printing Office, 1969). The scope has been broadened with respect to the levels and kinds of information centers identified. "The principal population surveyed by questionnaire for the purpose of this compilation included those institutions and agencies that have come to be identified as sponsors of educational information centers. In addition, national education organizations and associations that were considered potential sources of information service (above any normal degree of publication preparation or consultative service) were surveyed."

The main sections of the directory are: "Local Resources," identifying state and local centers; "National Resources," comprising selected organizations and agencies which serve educators in a multi-state area or throughout the nation (**ERIC**—Educational Resources Information Center, the U.S. Office of Education Regional Offices, U.S. Office of Education Sponsored Programs, National Associations, and National Information Centers are grouped separately within this section); and "Guides to Organizational Resources in Education," (a new section) providing references to sources of more specialized information.

Information provided on each entry includes: name of center, address and telephone, name and title of director and/or head of information services, founding date, sponsor or parent organization, purpose, services and products, users, and holdings.

An index is also included.

SIPI Publishes Reports

The Scientists' Institute for Public Information (SIPI) has begun publication of a quarterly bulletin called the **SIPI Report**.

News of SIPI and its affiliated committees is presented. Also included are items of interest to scientists and other citizens engaged in science information work.

Publication of the **SIPI Report** began with the fall 1970 issue. Albert Bradford is the Editor; Mari Wasson, Assistant to the Editor; and John Lennard, Designer.

Copies can be obtained from:

Scientists' Institute for Public Information
30 East 68th Street
New York, New York 10021.

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Environmental Protection Agency Administrator Proclaims — "The Time for Action Is Now"

"If every one of us will adopt the simple truth that 'I can save the earth,' we will realize how much we can achieve together," William D. Ruckelshaus, administrator of the federal Environmental Protection Agency (EPA), stated at The Ohio State University (Columbus) during Earth Day activities.

Ruckelshaus, appointed by President Nixon as administrator of the new EPA in November, 1970, has issued 180-day warnings to Cleveland and Detroit to devise a plan to end their pollution of Lake Erie. He has also instituted legal proceedings against a large steel company and a paper manufacturer, charging them with polluting waterways.

EPA attempts to coordinate all federal administrations and programs dealing with pollution and environment.

The new administrator, born July 24, 1932, in Indianapolis, Indiana, graduated Cum Laude from the Princeton University and with a LL.B. from Harvard Law School in 1960. He has served in the U.S. Army; as Deputy Attorney General, Indiana; Majority Leader, Indiana House of Representatives; and Assistant Attorney General of the United States.

Following is the Ruckelshaus address.

Last year some said there would never be another Earth Day. They saw concern for our environment as a fad, and claimed that the instant enthusiasm of an activist generation would soon flow elsewhere. I believe they were wrong.

But why this second Earth Day? Is this second day of commitment only a repetition of what we have said and attempted before?

I think not. I believe there are fundamental distinctions between our celebration of the earth a year ago and our commitment to its preservation now.

In terms of the environment, we are moving from an era of awareness to an era of action. Since the last Earth Day, the point has been driven home that the problem of the restoration and preservation of the environment is a problem which transcends generation gaps, partisan divisions, and national boundaries.

A year ago Americans gathered in classrooms and lecture halls, on city streets and on grassy knolls, out of concern and out of anger to call for an accounting of man's stewardship of the planet and its resources. And in the Shadow of the Atomic Age we realized man can destroy himself piecemeal as well as by holocaust.

We came to realize the human dimensions of antiseptic statistics.

We came to realize that the more than 1400 pounds of air pollution per person which rides the wind and rain across this continent is a hazard to health and life and the human spirit.

We came to realize that more than 50 trillion gallons of hot water, millions of tons of organic and chemical pollutants, enormous amounts of fertilizers, pesticides, and most of all, sewage every year are spoiling rivers once celebrated in our art and literature and history. The Hudson and the Potomac, the Missouri and the Monongahela, the Snake and the Androscoggin—all rivers rich in history—are today rivers rich in industrial and municipal wastes.

We came to realize that the more than 7 million automobiles, 20 million tons of paper, 48 billion cans and 26 billion bottles a year which litter our landscape mean that almost nowhere on this continent can man escape the impact he has had on nature.

We came to realize too that we were not alone in our disregard for the delicate balance of life.

It is said Lake Erie is dying, but Lake Baikal in Soviet Siberia, the oldest and deepest freshwater lake in the world, suffers discharges from pulpmills every day and is in her own race with time. The irreplaceable ancient statuary of Rome is being eaten every day by an acid smog more disastrous than all the armies of Gaul. The fabled Rhine, celebrated by Byron as the "valley of sweet waters," is now the waste removal system for the industries of the Ruhr. In Tokyo policemen have to be relieved to breathe pure oxygen from tanks while they are directing traffic. In Seoul, South Korea; Taipei, Formosa; and Ankara, Turkey; and the rest of the developing world which is urbanizing at a rate unprecedented in human history, little time is left before they too are overwhelmed by the backlash of progress.

None of that knowledge can give us comfort. The year of awareness is over. The time for action is now. No longer can we substitute slogans or symbols for solutions.

Throughout this week the press has remarked on the change of tone between the observance of Earth Day today and a year ago. There are no mass meetings and marches now. No boisterous crowds, no buried automobiles. We have recognized the truth of Ortegay Gasset's observation: "I am myself and what is around me, and if I do not save it, it will not save me."

The focus of Earth Day II is the individual—the responsibility each of us bears to move beyond awareness to action

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that will return man to a balance with nature. Whether as citizen or consumer, producer or promoter, legislator or lawyer—or as Administrator of the Environmental Protection Agency—we all have a role to play, specific responsibilities to meet, if we truly wish to enjoy clean air, pure water, quiet skies and streets, uncluttered countryside and a less crowded planet.

Individuals and institutions alike must realize an untamed river is not simply a channel for barges, a source of hydropower, or a convenient sewer. Open land is something other than a potential subdivision. A forest is a heritage—not just a stand of marketable timber. The wilderness is more than a source of renewal and a last resort, it is yesterday untrammeled by the technology of today.

More so than ever before, government is meeting its responsibility to enhance and protect the environment. Some say it is about time and I agree. But the time has come! It has come for us all.

Last February, President Nixon sent to Congress the most comprehensive plan for environmental reform and reconstruction that has ever been proposed.

He has called for a $12 billion three year program that will enable every community in America to provide at least secondary treatment of its sewage.

He has called for a graduated tax on sulfur oxides to encourage the elimination of one of the most harmful of air pollutants.

He has called as well for a special tax to make the price of unleaded gasoline lower than the leaded variety.

He has called for legislation which will insure that adequate tests are performed on any potentially toxic substance before it is introduced into the environment.

He has called for legislation to restrict the dumping of wastes in the ocean where they can endanger the rich diversity of life that thrives in the sea.

He has called for the adoption of a national land use policy to stop suburban sprawl, urban ugliness, and the kind of random development that wastes dwindling land resources.

These and other proposed measures will not only bridge the gaps in existing legislation, but will inaugurate a policy of preventive medicine with regard to environmental protection. This new commitment on behalf of government includes also a new agency, the Environmental Protection Agency, which has already shown its independence and determination to utilize all the enforcement tools at its disposal against any who infringe the right of every American to clean air, pure water and unspoiled land.

But all of the resources of government and all of the legislation Congress may pass cannot equal the benefit that will come from enlightened citizens who realize that the earth is man's only home. No longer can we ride the coattails of nature without paying full fare for the ride.

In individual, as well as corporate and societal decisions, we must incorporate an assessment of the impact of all that we may plan or do on nature and its finite resources. We have hardly begun to realize in our personal lives the profound changes environmental enhancement may require.

The National Environmental Policy Act directs every agency of the federal government to assess and make public the environmental impact of each of its major actions, as well as to consider alternatives which might minimize environmental damage. Every individual and organization must accept the same self-discipline.

We must abandon the concept of a gross national product in favor of an environmental ethic that encourages us to see the net cost of the goods and services we consume. The flashy new car on the showroom floor must be seen for all that it is, and not just as an attractive convenience. It represents one more car on already crowded highways. A heap of junk to be disposed of—someday, but also a conglomeration of valuable resources to be recycled one day. And it is a major source of air pollution. When all of us adopt that outlook we will have established an environmental ethic in this nation which will be our best insurance against abuse of our resources.

The time has come for all who value the heritage of man on this earth to back up their belief with a commitment. In our individual and corporate actions, we can make the difference between action now, or more months and years of idle talk and fearful speculation.

At this Earth Day II I believe all the elements exist for a successful solution to the problem of environmental degradation. The public in increasing numbers demonstrates awareness of the problem and support for its solution. A national administration of one party, and a Congress dominated by another, seem equally committed to providing the laws and resources to protect and enhance the environment. The technology exists to control all forms of visible pollution, and research is being conducted now to fill the gaps in our knowledge. The battle is not over, nor will victory be easy or even total, but the climate is ripe for significant action.

As we move from awareness to action, we might remember our society badly needs some successes.

For over a generation, this nation has wrestled with problems which have yet to surrender to solution: problems of race and urban decay, of health care and poverty, of economics and crime, of war and a wavering spirit.

Over and again, we have promised solutions to these problems and we have disappointed and disillusioned ourselves when hollow lives and decaying cities could not be easily restored. The task now is to overcome the disappointments of the past as we build our common future.

I believe that the protection of the environment offers America its best hope for a dramatic success.

Achieving the goal of a clean and healthy environment must be done by us all—by every American. We can reach that goal in this decade. And in reaching it we can trigger a chain reaction of confidence and hope that will help us to achieve all of our great goals for the seventies.

Behind the issue of environmental protection we can unite every American, with no man as an adversary and no man as an antagonist.

If every one of us will adopt the simple truth that "I can save the earth," we will realize how much we can achieve together.

Interpretation of Current Knowledge on Educational Issues

Interpretive summaries called "Targeted Communications" are prepared under contract as part of a program to increase the utilization of the findings of educational research and development for improving educational practice. Targeted Communications are written in nontechnical language and are prepared to meet the information needs of specific, nonresearch audiences. Their purpose is to provide school districts, universities, and State agencies with information they need to evaluate their current education programs or to implement improved ones. Depending upon the audience and the topic examined, the information might include cost estimates for installing a new curriculum, planning guidelines, evaluation techniques, sources of additional information, brief description of exemplary practices in other schools, and the like.

Targeted Communications are issued monthly as PREP (Putting Research into Educational Practice) reports, which are distributed to each State education agency for subsequent dissemination to local schools. The PREP report format is specially designed to facilitate reproduction of multiple copies by SEA's or LEA's. Through this joint effort the National Center for Educational Communication hopes to strengthen State and local educational information services and to speed the adoption of tested educational products and practices.

Following are the PREP reports which have been issued to date:

1. **Instructional Television Facilities: A Guide for School Administrators and Board Members.** ED 034 077. MF-.65; HC-$3.29.
2. **Reading Difficulties: Reading and the Home Environment. The Principal's Responsibility.** ED 034 078. MF-.65; HC-$3.29.
3. **Establishing Central Reading Clinics: The Administrator's Role.** ED 034 079. MF-.65; HC-$3.29.
4. **Correcting Reading Problems in the Classroom:** ED 034 080. MF-.65; HC-$3.29.
5. **Treating Reading Disabilities: The Specialist's Role.** ED 034 081. MF-.65; HC-$3.29.
6. **Bilingual Education.** ED 034 082. MF-.65; HC-$3.29.
7. **Research for School Board Members: School-Community Relations.** ED 034 083. MF-.65; HC-$3.29.
8. **Research for School Board Members: Teacher Militancy, Negotiations and Strikes.** ED 034 084. MF-.65; HC-$3.29.
9. **Job-Oriented Education Program for the Disadvantaged.** ED 034 085. MF-.65; HC-$3.29.
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11. **Research on Elementary Mathematics.** ED 034 087. MF-.65; HC-$3.29.
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18. **Reinforcing Productive Classroom Behavior: A Teacher's Guide to Behavior Modification.** ED 042 061. MF-.65; HC-$3.29.
19. **Migrant Education.** ED 042 936. MF-.65; HC-$3.29.
20. **Teacher Recruitment and Selection.** ED 043 797. MF-.65; HC-$3.29.
21. **Teacher Education.** ED 044 546. MF-.65; HC-$3.29.

How to Obtain PREP

PREP reports are available from the following sources:

Your State education agency.

ERIC Document Reproduction Service, Leasco Information Products Co., 4827 Rugby Ave., Bethesda, Maryland 20014. (Order by ED number listed above).

Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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The Center is located in:
Room 1131
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To arrange a visit, call: (202) 962-6263 or 963-5061.

Model Programs — Childhood Education Series

Introduction

The **MODEL PROGRAMS—Childhood Education** series includes 33 booklets, each of which describes a promising operating program in childhood education. The series was prepared for the White House Conference on Children, December, 1970. Programs in the series range from the preschool and kindergarten levels through the elementary level and emphasize reading and language development, day care and early childhood education, community involvement, and individualized instructional techniques. Each booklet provides details about the purpose of the program; the children reached; specific materials, facilities, and staff involved; and other features such as community services, parental involvement, and costs. Sources of additional information on the programs are included.

The 33 programs have been classified under the following headings—reading and language development, day care and early childhood education, community involvement, and individualized instructional techniques—together with the OE number and cost for ordering the program booklet from the U.S. Government Printing Office.

Reading and Language Development

Bilingual Early Childhood Program, San Antonio, Texas, OE-20134, .20.

Exemplary Center for Reading Instruction, Salt Lake City, Utah, OE-20136, .20.

DOVACK, Monticello, Florida, OE-20141, .20.

University of Hawaii Preschool Language Curriculum, Honolulu, Hawaii, OE-20156, .20.

Corrective Reading Program, Wichita, Kansas, OE-20158, .20.

Boston Public Schools Learning Laboratories, Boston, Massachusetts, OE-20153, .20.

Perceptual Development Center Program, Natchez, Mississippi, OE-20142, .20.

Day Care and Early Childhood Education

The Day Nursery Association of Cleveland, Cleveland, Ohio, OE-20146, .20.

Neighborhood House Child Care Services, Seattle, Washington, OE-30130, .20.

Demonstration Nursery Center for Infants and Toddlers, Greensboro, North Carolina, OE-20138, .20.

Cognitively Oriented Curriculum, Ypsilanti, Michigan, OE-20145, .25.

Community Cooperative Nursery School, Menlo Park, California, OE-20161, .15.

Tacoma Public Schools Early Childhood Program, Tacoma, Washington, OE-20160, .20.

The Micro-Social Preschool Learning System, Vineland, New Jersey, OE-20148, .25.

Hartford Early Childhood Program, Hartford, Connecticut, OE-20162, .20.

Appalachia Preschool Education Program, Charleston, West Virginia, OE-20143, .20.

Model Observation Kindergarten and First Grade, Amherst, Massachusetts, OE-20152, .20.

Santa Monica Children's Center, Santa Monica, California, OE-20135, .20.

NRO Migrant Child Development Center, Pasco, Washington, OE-20133, .20.

Cross-Cultural Family Center, San Francisco, California, OE-20132, .15.

Community Involvement

Foster Grandparent Program, Nashville, Tennessee, OE-20144, .15.

Philadelphia Teacher Center, Philadelphia, Pennsylvania, OE-20163, .15.

Mothers' Training Program, Urbana, Illinois, OE-20147, .20.

Police Youth Protection Unit Programs, San José, California, OE-20151, .20.

Martin Luther King Family Center, Chicago, Illinois, OE-20154, .20.

Springfield Avenue Community School, Newark, New Jersey, OE-20157, .20.

Center for Early Development and Education, Little Rock, Arkansas, OE-20140, .20.

Individualized Instructional Techniques

Interdependent Learner Model of a Follow Through Program, New York, N.Y., OE-20149, .20.

Behavior Principles Structural Model of a Follow Through Program, Dayton, Ohio, OE-20155, .15.

Behavior Analysis Model of a Follow Through Program, Oraibi, Arizona, OE-20131, .20.

Responsive Environment Model of a Follow Through Program, Goldsboro, North Carolina, OE-20139, .20.

Project PLAN, Parkersburg, West Virginia, OE-20150, .20.

Dubnoff School for Educational Therapy, Hollywood, California, OE-20137, .20.

How to Obtain Copies

Booklets in the series are available from the following sources:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

ERIC Document Reproduction Service
LEASCO Information Products Co.
4827 Rugby Avenue
Bethesda, Maryland 20014

ERIC Publications Available

RIE Annual Index: January-December 1970, citing 10,456 reports, is available at $6.00 a copy from:

Superintendent of Documents
Government Printing Office
Washington, D.C. 20402.

CIJE Annual Cumulation: 1970, listing 15,892 journal citations, can be purchased at $29.50 a copy from:

CCM Information Corporation
909 Third Avenue
New York, New York 10022.

Directory of Educational Information Resources, published by CCM and compiled by the System Development Corporation under contract with the Office of Education, can be obtained from CCM at $3.50 a copy. It identifies and describes state and national centers that provide access to educational information and material. Each entry includes the address, sponsor, purpose, services and products, user qualifications, and holdings of the center.

Thesaurus of ERIC Descriptors, the source of all subject headings used for indexing and retrieval of documents and journal articles in the ERIC collection, is available at $8.95 a copy in the cloth cover and $6.95 a copy in paperback.

CLASS: Reading (Current Literature Awareness Service Series) Volume 1, November 4, January 1971, is available at $1.50 per single copy and $10.50 for an annual subscription for the eight issues published each year. **CLASS Reading,** a compilation of reports related to reading cited separately in RIE and CIJE, includes an analysis of current developments by Dr. James L. Laffey, Director of the ERIC Clearinghouse on Reading.

CIJE Prices Change

As of January 1971, the following **Current Index to Journals in Education** price schedule has been in effect:

Monthly (12 issues)	—$39.00
Semiannual & Annual	— 40.00
Monthly, Semiannual, and Annual	— 74.00
Annual (purchased singly)	— 29.50

Single copies will continue to be $3.50 each. The change was made largely because of postal rate increases.

Collections Available from EDRS

Leasco, Information Products, Inc. (LIPCO) has released the price schedule for **ERIC** special collections and the **Research in Education** back collections available from **ERIC** Document Reproduction Service (EDRS). Prices were determined by an actual inventory count of microfiche in each collection and represent the quantity of microfiche in each collection and the unit price applicable. New prices are as follows:

RIE BACK COLLECTIONS

NAME	TOTAL FICHE	UNIT PRICE	COLLECTION PRICE
Reports in Education for 1966 & 67	4,426	$.089	$ 394.00
Reports in Research in Education for 1968	13,326	$.089	$1,187.00
Reports in Research in Education for 1969	15,899	$.089	$1,416.00
Reports in Research in Education for 1970	16,188	$.089	$1,441.00

SPECIAL COLLECTIONS

ERIC Catalog of Selected Documents on the Disadvantaged	2,740	$.14	$ 384.00
Office of Education Research Reports, 1956-65	3,315	$.14	$ 465.00
Selected Documents in Higher Education	1,258	$.14	$ 177.00
Pacesetters in Innovation, Fiscal Year 1966	1,185	$.14	$ 166.00
Pacesetters in Innovation, Fiscal Year 1967	1,437	$.14	$ 202.00
Pacesetters in Innovation, Fiscal Year 1968	919	$.14	$ 129.00
Manpower Research, Inventory for Fiscal Years 1966 & 67	653	$.14	$ 92.00
Manpower Research, Inventory for Fiscal Year 1968	364	$.14	$ 51.00
Manpower Research, Inventory for Fiscal Year 1969	473	$.14	$ 67.00

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Grants for Environmental Education Announced by HEW

Award of 74 grants totaling $1.7 million for environmental education projects in 31 States and the District of Columbia was announced recently by U.S. Commissioner of Education Sidney P. Marland, Jr.

The grants are the first awarded under the Environmental Education Act (P.L. 91-516). They were selected from the almost 2,000 proposals totaling more than $75 million for such projects received by HEW's Office of Education in a six-week period from nearly every State.

The funds will support several types of education projects that are concerned with the Nation's need for environmental quality and ecological balance. They include community education, curriculum development, establishment of environmental education centers, noneducational personnel training, and dissemination of information to the public.

"Environmental education involves every person and form of life upon this planet," Dr. Marland said. "Many civilizations in earth's history have been destroyed because those who developed them did not know enough to protect and conserve the natural resources upon which their lives depended. Today we are beginning to realize how much we need to know, and how much we need to do, to safeguard the environment we can enjoy and, hopefully, leave for the enjoyment of our children."

Examples of some of the environmental education projects awarded grants are:

—Portland (Oregon) School District No. 1, in collaboration with surrounding intermediate school districts, will develop a complete environmental education plan. A course taught at Wilson High School will involve students participating in community field work rather than the traditional textbook/laboratory/experiment approach. An outdoor laboratory established in a natural setting called CATCH will seek to develop environmental responsibility between schools, homes and the community. Another program will consist of an art-initiated course where students will study the relationship of environmental aesthetics in a low socio-economic environment; and an Eco-Aesthetics Continuum will embrace all curricular disciplines designed to influence decision-making, help teachers and students to become visibly aware of their surroundings and offer opportunities for visual experimentation.

—"Trash is Cash," an environmental action coalition in New York City, combines the efforts of 20 community school groups that profitably recycle some 20 tons of waste material weekly. The project calls for the expansion of this process through community involvement.

—The Southern Alameda County (California) Economic Opportunity Agency will develop a program to train a minimum of 20 community leaders, primarily from low-income and minority sectors, in environmental policy and advocacy. They in turn will each educate a minimum of 10 community residents, who will confer with key decision-makers in local environmental control agencies and seek to develop a consciousness of issues through various communications media.

—The Children's Museum of Boston will develop an open city travel-aids project, which will be a joint venture of the Children's Museum, the Laboratory for Environmental Studies of the Massachusetts Institute of Technology, the Massachusetts Bay Transportation Authority, and the Boston and Lincoln Public School systems.

A listing by State of the projects awarded grants follows:

ARKANSAS

Garland County Local Education Agencies and Arkansas State Department of Education, Little Rock, $50,000. Inservice educational personnel training.

Society for Environmental Stabilization, Fayetteville, $7,900. Community environmental education.

CALIFORNIA

San Benito County Consumers Corporation, Hollister, $10,000. Dissemination of information.

Blacks United for Progress, Oakland, $10,000. Community environmental education.

Portola Institute, Menlo Park, $75,700. Community environmental education.

South Alameda County Economic Opportunity Agency (CAP), Fremont, $10,000. Community environmental education.

Open Space Incorporated, Los Angeles, $55,000. Environmental education centers.

San Jose State College Foundation, San Jose, $28,000. Curriculum development.

Ecology Action Education Institute, Modesto, $8,900. Community environmental education.

Community Environmental Council, Santa Barbara, $10,000. Environmental education centers.

Department of Education, San Diego County, $50,000. Environmental education centers.

COLORADO

Social Science Education Consortium, Boulder, $50,000. Curriculum development.

Center for Research and Education, Estes Park, $40,000. Special evaluation and dissemination activities for State planning groups.

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DISTRICT OF COLUMBIA

Frederick Douglas United Community Center, Washington, $55,000. Community environmental education.

FLORIDA

Florida State University, Tallahassee, $10,000. Supplementary materials development.

GEORGIA

Atlanta Public Schools, Atlanta, $71,000. Curriculum development.

HAWAII

Punahoe School, Honolulu, $6,500. Elementary and secondary education projects.

IDAHO

The College of Idaho, Caldwell, $3,000. Curriculum development.

ILLINOIS

The Winnebago County Soil and Water Conservation District, Rockford, $10,000. Community environmental education.

Illinois Federation of Women's Clubs, Riverdale, $2,000. Community environmental education.

Valley View School District #96, Lockport, $10,000. Environmental education centers.

INDIANA

Indiana University Foundation, University of Indiana, Bloomington, $16,200. Workshops for government personnel.

IOWA

Soil Conservation of America, Ankeny, $9,300. Curriculum development.

KENTUCKY

Morehead State University, Morehead, $25,000. Special evaluation and dissemination activities for State planning groups.

MARYLAND

Prince Georges County Community Action Committee, Capitol Heights, $10,000. Inservice noneducational personnel development.

MASSACHUSETTS

Massachusetts Institute of Technology, Cambridge, $35,000. Community environmental education.

The Children's Museum of Boston. $37,500. Inservice noneducational personnel development.

Worcester Polytechnic Institute, Worcester, $10,000. Inservice noneducational personnel development.

Lower Roxbury Corporation (CAP), $8,000. Community environmental education.

Massachusetts Audubon Society, Lincoln, $30,000. Special evaluation and dissemination activities for State planning groups.

Archdale Tenants Council, The Office of Cultural Affairs, Boston, $10,000. Community environmental education.

MICHIGAN

School District of the City of Pontiac, $9,700. Elementary and secondary education programs.

Department of Environmental and Industrial Health, School of Public Health, University of Michigan, Ann Arbor, $35,000. Curriculum development.

ENACT Ecology Center, Ann Arbor, $9,700. Community environmental education.

School of Natural Resources, University of Michigan, Ann Arbor, $14,000. Community environmental education.

MINNESOTA

Environmental Library of Minnesota, Inc., Minneapolis, $5,000. Dissemination of information.

Environmental Education Planning Committee, Golden Valley, $40,000. Special evaluation and dissemination activities for State planning groups.

Minnesota Environmental Science Foundation, Inc., Golden Valley, $50,000. Environmental education centers.

MISSOURI

St. Louis Public Library, St. Louis, $55,000. Environmental education centers.

Northeast Missouri State College, Kirksville, $7,900. Inservice educational personnel training.

MONTANA

Falls Creek Environmental Education Foundation, Missoula, $18,000. Community environmental education.

NEW HAMPSHIRE

St. Anselm's College, Manchester, $43,000. Community environmental education.

Nelson Conservation Commission, Marlborough, $1,600. Elementary and secondary education programs.

NEW YORK

Temporary State Commission on Youth Education in Conservation, Albany, $27,000. Special evaluation and dissemination activities for State planning groups.

East Syracuse-Minoa School District #1, $25,000. Curriculum development.

Pratt Institute, Brooklyn, $52,000. Environmental education centers.

School Television Service Channel 13/WNET, Educational Broadcasting Corporation, New York City, $10,000. Community environmental education.

Environmental Action Coalition, New York City, $32,000. Community environmental education.

NORTH CAROLINA

Yadkin Valley Economic Development District, Inc. (CAP), Booneville, $10,000. Community environmental education.

NORTH DAKOTA

North Dakota State University, Fargo, $16,000. Community environmental education.

OHIO

Environmental Clearinghouse, Inc., Toledo, $4,600. Dissemination of information.

Institute for Environmental Education University School, Chagrin Falls, $36,000. Curriculum development.

Health Planning Association of Northwest Ohio, Maumee, $9,900. Curriculum development.

Butler County Community Action Commission, Hamilton, $44,000. Comprehensive community education models.

West End Health Center, Cincinnati, $8,600. Community environmental education.

The Council for Economic Opportunities in Greater Cleveland, $10,000. Community environmental education.

OREGON

Board of Education Corvallis School District, Corvallis, $30,000. Supplementary materials development.

School District #1, Multnomah County, Portland, $125,000. Elementary and secondary education programs.

PENNSYLVANIA

Group for Environmental Education, Philadelphia, $10,000. Dissemination of information.

Allegheny County Environmental Education Center, Allegheny Department of Parks, Recreation, and Conservation, Boyce Park, Monroeville, $10,000. Environmental education centers.

Luzerne-Lackawanna Citizens' Council for Clean Air, Scranton, $10,000. Community environmental education.

Group Against Smog and Pollution, Pittsburgh, $10,000. Community environmental educaton.

Great Lakes Research Institute, Erie, $7,500. Dissemination of information.

TENNESSEE

LeMoyne-Owen College, Memphis, $12,500. Curriculum development.

East Tennessee Development District, Knoxville, $10,000. Community environmental education.

TEXAS

Department of Architecture, University of Texas, Arlington, $21,000. Educational personnel training.

Southern Methodist University, Dallas, $40,000. Community environmental education.

Office of the Governor, Division of Planning Coordination, Capitol Station, Austin, $36,000. Evaluation and dissemination activities for State planning groups.

VERMONT

Fairbanks Museum of Natural Science, St. Johnsbury, $16,000. Environmental education centers.

WASHINGTON

Seattle-King County Economic Opportunity Board (CAP), Seattle, $50,000. Community environmental education.

WEST VIRGINIA

West Virginia University College of Engineering, Morgantown, $18,500. Curriculum development.

Harrison County Elk Creek Pollution Committee, Nutter Fort, $5,000. Community environmental education.

WISCONSIN

Beloit College, Beloit, $42,000. Community environmental education.

WYOMING

Wyoming Committee for Community Environmental Awareness and Action, Division of Adult Education and Community Service, University of Wyoming, Laramie, $7,000. Dissemination of information.

LIPCO Announces EDRS Address

All correspondence and orders for **ERIC** Document Reproduction Service (EDRS) services should be sent to the following permanent address:

ERIC Document Reproduction Service
P.O. Drawer 0
Bethesda, Maryland 20014

AAAS Publishes Environmental Reference

Science for Society—A Bibliography, which is believed to be the most comprehensive listing to date of books, journals, articles, and other literature dealing with the environment, has been published by the American Association for the Advancement of Science.

The reference work is designed primarily for use in physical science and social science courses in high school and college. The 96-page compendium, however, should be useful to scientists, as well as laymen, who are interested in the environment.

The book contains nearly 4,000 references, many of them annotated. It is the second edition of the book bearing the same title that was issued by the AAAS Commission on Science Education a year ago. Dr. John A. Moore, professor of biology at the University of California, Riverside, who is chairman of the commission, edited both editions.

All aspects of the interrelations of man, society, environment, science and technology are treated in the book. Titles are classified and indexed in major and minor categories to help the user find materials on specific subjects.

Support by the National Science Foundation, E. I. du Pont de Nemours & Company, Xerox Corporation, and the AAAS makes it possible to offer the bibliography at $1.00 per copy, or 75 cents each in multiples of 10 copies. Orders, accompanied by payment, should be addressed to the Education Department, AAAS, 1515 Massachusetts Avenue, Washington, D. C. 20005.

National Association for Environmental Education Organized

As a result of interest expressed by some 300 universities and colleges in the U.S.A. and Canada, the establishment of the National Association for Environmental Education has been announced by Dr. Robert H. McCabe, executive vice-president of Miami-Dade Junior College, who is its interim president.

At the first meeting of the Association's Board of Directors, held recently in Chicago, it was decided that in its beginning period, the National Association for Environmental Education should focus upon higher education with primary emphasis on lower division programs.

Among the programs which the organization will begin almost immediately will be those relating to demands and priorities in environmental education, identification and development of curriculum materials, instructional processes and strategies, and faculty development.

Although membership will be primarily for institutions of higher education and staff members of such institutions who have a commitment to environmental education, other groups or individuals may join as sustaining, contributing or associate members. Associate membership is particularly intended to accommodate persons with a strong interest in this field who are not connected with institutions of higher education. The initial plans of the organization do not include expansion into the fields of secondary and elementary education, although it is possible that such expansion may occur at a later date.

In addition to Dr. McCabe, executive committee members of the organization include:

Dr. Lewis Follansbee, Director, MDTA Projects in Environmental Education
Orange Coast College, California

Dr. Charles McKinney, President, South Campus
Tarrant County Junior College District, Texas

Dr. Arden Pratt, Dean, College of Career Education
Southern Illinois University, Illinois

Other members of the board of directors are:

Dr. Arnold Binder, Director, Program in Social Ecology
University of California at Irvine

Dr. J. N. Carsey, President, Charles County Community College, Maryland

Dr. Russell Farnen, Associate Professor of Political Science
George Peabody College for Teachers, Tennessee

Dr. George Francis, Chairman, Man-Environment Studies
University of Waterloo, Ontario

Dr. Kevin Gottlieb, Director, Environmental Studies Institute
Syracuse University, New York

Mr. George Hamilton, Jr., Director, Environmental Studies
Berkshire Community College, Massachusetts

Mr. Robert Hilbert, Assistant Professor of Biological Sciences
Delta College, Michigan

Dr. Noel McInnis, Director, Center for Curriculum Design
Kendall College, Illinois

Dr. R. F. Mines, Dean, Research & Planning
Miami-Dade Junior College, Florida

Dr. John Nellor, Coordinator, Center for Environmental Quality
Michigan State University

Dr. George O'Hearn, Co-Director, Environmental Education Council
University of Wisconsin at Green Bay

Mr. Roger Podewell, Assistant Professor of Geography,
Olive-Harvey College, City Colleges of Chicago, Illinois

Mr. J. Harry Smith, President, Essex County College, New Jersey

Dr. Charles Ray, Professor of Education, University of Alaska

The present officers and board of directors have agreed to remain in office until the first general meeting of the National Association for Environmental Education to be held in May, 1972. Location of this conference will be announced at a later date.

For further information contact:

Dr. Robert F. Mines
Secretary-Treasurer
National Association for Environmental Education
11011 S.W. 104 Street
Miami, Florida 33156
Telephone: (305) 274-1381

ERIC/English Changes Address

The new address for the **ERIC** Clearinghouse on the Teaching of English is:

ERIC Clearinghouse on the Teaching of English
National Council of Teachers of English (NCTE)
1111 Kenyon Road
Urbana, Illinois 61801
Phone: (217) 328-3870.

Clearinghouse for Nutrition Education Established

The Society for Nutrition Education (SNE) has established a new clearinghouse for nutrition education materials as a result of recommendations made at The White House Conference on Food, Nutrition and Health and suggestions from SNE members. The new facility to aid nutrition educators is the National Nutrition Education Clearing House (NNECH). Materials which will be cataloged in the NNECH include reprints of journal articles, pamphlets, books, curriculum guides, audio-visual aids, bibliographies, and reports of research related to nutrition education. Materials suitable for presentation and distribution to students or consumers as well as materials which provide background knowledge for the nutrition educator will be included.

Beginning with a collection of nutrition education materials sent for review to the SNE's **Journal of NUTRITION EDUCATION** and provided by the JNE's editor, Helen Denning Ullrich, the NNECH seeks contributions of appropriate materials from educational institutions; commercial, government, and private organizations; medical and research institutions; and any individuals developing new materials.

As the NNECH develops, there will be a listing of the resource materials available to SNE members either free or for a minimal fee and to non-members for a fee to be determined. It is anticipated such requests can be filled beginning in October, 1971.

Those in the field of nutrition having materials which may be useful to nutrition educators are invited to send copies for evaluation to the Educational Director (NNECH), Society for Nutrition Education, P.O. Box 931, Berkeley, California 94701.

National Recreation Trails Announced

Twenty-seven trails in19 states and the District of Columbia have been designated as new National Recreation Trails by Secretary of the Interior Rogers C. B. Morton. The new trails range in length from just under one-quarter mile to 30 miles. Most are near urban population centers.

Included in the group are outdoor recreation opportunities for hikers, bikers, horseback riders, nature lovers, snowmobilers, and handicapped in wheelchairs. Location of the trails: Pinnel Mountain Trail near Fairbanks, Alaska; South Mountain Park Trail near Phoenix, Ariz.; Sugar Loaf Mountain Nature Trail, Greer Ferry Lake, Ark.; King Range Trail near Eureka, Calif.; South Yuba Trail near Nevada City, Calif.; Highline Canal Trail near Denver, Colo.; Fort Circle Parks Trail, Washington, D.C.; Stone Mountain Trail near Atlanta, Ga.; Illinois Prairie Path near Chicago; Long Creek Trail, Golden Pond, Ky.; Fontenelle Forest Trail, Omaha-Council Bluff, Neb.; Palisades Long Path, Palisades Interstate Park, N.J.; Palisades Short Trail, Palisades Interstate Park; Organ Mountain Trail, Las Cruces, N.M.; Harriman Long Path, Harriman State Park near New York City; Tillamook Head Trail. Ecola State Park near Portland, Ore.; Fairmount Park Bikeway near Philadelphia, Pa.; Bear Butte Trail, Bear Butte State Park near Sturgis, S.D.; Sunday Gulch Trail, Custer State Park, near Rapid City, S.D.; Trail of Spirits, Seiche Hollow State Park near Aberdeen, S.D.; Laurel-Snow Trail near Dayton, Tenn.; Greer Island Nature Trail, Fort Worth, Tex.; Lake Washington Bicycle Path, Seattle, Wash.; Lake Washington Ship Canal Waterside Trail, Seattle; Fred Cleator Interpretive Trail, Federation Forest State Park near Tacoma, Wash.; Elroy-Sparta Trail between Elroy and Sparta, Wis.; Ice Age Glacier Trail, Kettle Moraine State Forest near Milwaukee, Wis.

NASA Pamphlets and Films Available

Publications

NASA Educational Publications, a 13-page pamphlet listing educational and informational publications which explain the National Aeronautics and Space Administration's goals, projects, and advances in science and technology, is available from:

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Educational publications listed include curriculum resource materials and guidance resource materials. Thirty educational booklets are listed, including such titles as: "Report from Mars," "Linking Man and Spacecraft," "The Planetarium: An Elementary-School Teaching Resource," "Model Spacecraft Construction," "Space Jobs," and "Aerospace Bibliography: 4th Edition."

Eighteen topics are covered in the NASA Facts booklets. These booklets describe a NASA program (Apollo, Lunar Orbiter, etc.) or discuss techniques (Space Navigation, Living in Space). Some are wall display sheets (Saturn V).

Six subjects are covered in the NASA Facts Science series. These fact sheets are designed for elementary, junior high, or senior high classrooms. Each issue is four pages and designed to fit in the standard size three ring notebook. Illustrations and diagrams are line drawings, which can be reproduced.

NASA Facts Organization series describes the functions and organization of the NASA Centers. They are available free of charge from the Educational Office at the NASA Center which is designated to serve your state. (Centers are listed in pamphlet.)

Films

A NASA Film List, listing films which describe NASA research and development programs in space and aeronautics and documenting the results of this research, can also be ordered from the previously mentioned address of the Superintendent of Documents.

Forty-seven NASA films of general interest are listed. Topics covered include: "American in Space: The First Decade," "The Clouds of Venus," "Food for Space Travelers," and "The John Glenn Story."

Several educational and special interest films for nontechnical audiences are listed.

Six adventures in research films, used for career counseling, are available.

Eight filmstrips, including such subjects as—"Geology from Space," and "Nuclear Propulson in Space"—are available.

To borrow films or filmstrips, U.S. residents should write to the appropriate NASA Regional Film Library. (Addresses are listed in the pamphlet.)

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